SERVICE MANUAL

3CD CHANGER HI-FI SYSTEM

MODEL: VTCF-CD 4095

universum.

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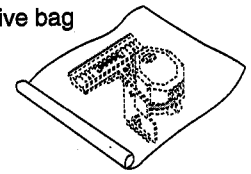
SERVICING PRECAUTIONS

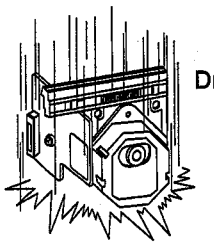
NOTES REGARDING HANDLING OF THE PICK-UP

1. Notes for transport and storage

1) The pick-up should always be left in its conductive bag until immediately prior to use.
2) The pick-up should never be subjected to external pressure or impact.

Storage in conductive bag

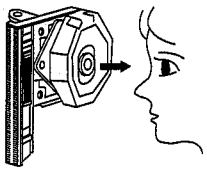




Drop impact

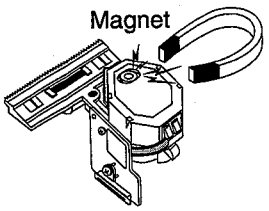
2. Repair notes

1) The pick-up incorporates a strong magnet, and so should never be brought close to magnetic materials.
2) The pick-up should always be handled correctly and carefully, taking care to avoid external pressure and impact. If it is subjected to strong pressure or impact, the result may be an operational malfunction and/or damage to the printed-circuit board.
3) Each and every pick-up is already individually adjusted to a high degree of precision, and for that reason the adjustment point and installation screws should absolutely never be touched.
4) Laser beams may damage the eyes!
   Absolutely never permit laser beams to enter the eyes!
   Also NEVER switch ON the power to the laser output part (lens, etc.) of the pick-up if it is damaged.

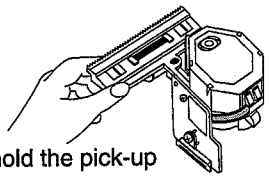


NEVER look directly at the laser beam, and don' t let contact fingers or other exposed skin.

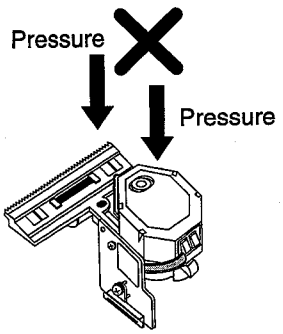
5) Cleaning the lens surface
   If there is dust on the lens surface, the dust should be cleaned away by using an air bush (such as used for camera lens). The lens is held by a delicate spring. When cleaning the lens surface, therefore, a cotton swab should be used, taking care not to distort this.



Magnet

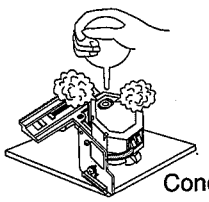


How to hold the pick-up



Pressure

Pressure



Conductive Sheet

Cotton swab

6) Never attempt to disassemble the pick-up.
   Spring by excess pressure. If the lens is extremely dirty, apply isopropyl alcohol to the cotton swab. (Do not use any other liquid cleaners, because they will damage the lens.) Take care not to use too much of this alcohol on the swab, and do not allow the alcohol to get inside the pick-up.

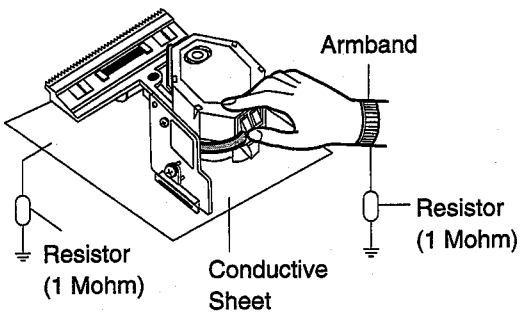
NOTES REGARDING COMPACT DISC PLAYER REPAIRS

1. Preparations

1) Compact disc players incorporate a great many ICs as well as the pick-up (laser diode). These components are sensitive to, and easily affected by, static electricity. If such static electricity is high voltage, components can be damaged, and for that reason components should be handled with care.
2) The pick-up is composed of many optical components and other high-precision components. Care must be taken, therefore, to avoid repair or storage where the temperature of humidity is high, where strong magnetism is present, or where there is excessive dust.

2. Notes for repair

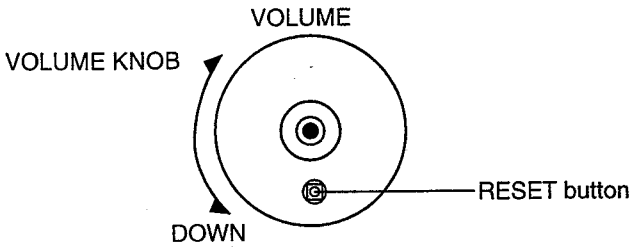
1) Before replacing a component part, first disconnect the power supply lead wire from the unit
2) All equipment, measuring instruments and tools must be grounded.
3) The workbench should be covered with a conductive sheet and grounded.
   When removing the laser pick-up from its conductive bag, do not place the pick-up on the bag. (This is because there is the possibility of damage by static electricity.)
4) To prevent AC leakage, the metal part of the soldering iron should be grounded.
5) Workers should be grounded by an armband (1MΩ)
6) Care should be taken not to permit the laser pick-up to come in contact with clothing, in order to prevent static electricity changes in the clothing to escape from the armband.
7) The laser beam from the pick-up should NEVER be directly facing the eyes or bare skin.



CLEARING MALFUNCTIONS

You can reset your unit to initial status if malfunctions occur (button malfunctions, display, etc.).
Using a pointed object (such as a pen), simply press the RESET button on the inside of the volume knob for more than 3 seconds.
If you reset your unit, you must reenter all its settings (stations, clock, timer).

NOTE: 1. To operate the RESET button, pull the VOLUME rotary knob and release it.
2. If you wish to operate the RESET button, it is necessary to unplug the power cord.



ESD PRECAUTIONS

Electrostatically Sensitive Devices (ESD)

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive Devices (ESD). Examples of typical ESD devices are integrated circuits and some field-effect transistors and semiconductor chip components. The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ESD devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ESD devices.
4. Use only an anti-static solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ESD devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ESD devices.
6. Do not remove a replacement ESD device from its protective package until immediately before you are ready to install it. (Most replacement ESD devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive materials).
7. Immediately before removing the protective material from the leads of a replacement ESD device, touch the protective material to the chassis or circuit assembly into which the device will by installed.

   CAUTION : BE SURE NO POWER IS APPLIED TO THE CHASSIS OR CIRCUIT, AND OBSERVE ALL OTHER SAFETY PRECAUTIONS.

8. Minimize bodily motions when handing unpackaged replacement ESD devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ESD device).

SPECIFICATIONS

1. AMPLIFIER SECTION

① Power Output (6 Ω , 2channel, T.H.D. 10%) ····· 100W+100W
② T.H.D ····· 0.15%
③ Frequency Response(-3dB down) ····· 30Hz~20kHz
④ Signal-to-noise Ratio ····· 81dB
⑤ Input Sensitivity AUX ····· 300mV±50mV
⑥ Channel Difference1kHz ····· 2dB

2. TUNER SECTION

(1)FM/OIRT

① Frequency Range ····· 87.5MHz~108MHz
or 65.0MHz~74.0MHz & 87.5MHz~108MHz
② Intermedite Frequency ····· 10.7MHz
③ Sensitivity (69MHz/70MHz/71MHz/90.1MHz/98.1MHz/106.1MHz) ····· 14dB
④ Signal-to-noise Ratio 98.1MHz(Mono/Stereo) ····· 63dB/58dB
⑤ Image Rejection 106.1MHz ····· 38dB
⑥ IF Rejection 90MHz ····· 85dB
⑦ Distortion 98MHz(Mono/Stereo) ····· 0.7%/1.2%
⑧ Frequency Response (-3dB) ····· 60Hz~14kHz
⑨ Stereo Separation (100Hz/1kHz/10kHz) ····· 28dB/28dB/23dB

(2)AM (MW)

① Frequency Range ····· 522kHz~1,611kHz,530kHz~1,720kH or 530kHz~1,610kHz
② Intermedite Frequency ····· 450kHz
③ Usable Sensitivity ····· 56dB
④ Image Rejection 1404kHz ····· 25dB
⑤ IF Rejection 603kHz ····· 45dB
⑥ Selectivity 1008kHz ····· 38dB
⑦ Signal-to-noise Ratio 1008kHz ····· 37dB
⑧ Distortion1008kHz ····· 1.6%
⑨ Frequency Response(-6dB) ····· 100Hz~2000Hz

(2)SW(OPTIONAL)

① Frequency Range ····· 5.8MHz~18MHz
② Intermedite Frequency ····· 450kHz
③ Usable Sensitivity ····· 40dB
④ Signal To Noise Ratio ····· 37dB
⑤ Distortion ····· 2%

(2)LW(OPTIONAL)

① Frequency Range ····· 153kHz~281kHz
② Intermedite Frequency ····· 450kHz
③ Usable Sensitivity ····· 62dB/m
④ Signal To Noise Ratio(200kHz) ····· 30dB
⑤ Distortion(200kHz) ····· 3%

3. TAPE DECK SECTION

① Tape Speed (MTT-111) / Normal Speed ..... 3kHz±1.5%
② Wow Flutter (MTT-111) 0.25%
③ Fast Forward and Rewind Time (C-60) 130sec
④ Frequency Response (6dB range) ..... 125Hz~8kHz
⑤ Signal-to-noise Ratio (Playback/Record) 48dB/43dB
⑥ Distortion (Playback / Record) 2%/3.5%
⑦ Crosstalk (Playback / Record) 55dB/53dB
⑧ Channel Separation (Playback / Record) 50dB/43dB
⑨ Erase Ratio 55dB

4. COMPACT DISC PLAYER SECTION

① Frequency Response (40Hz-18kHz) ..... +0.5/-3.5dB
② Signal-to-noise Ratio(1kHz) 73dB
③ Dynamic Range(1kHz) 70dB
④ T.H.D.(1kHz) 0.4%
⑤ Separation(100kHz/1kHz/10kHz) 42dB/48dB/40dB
⑥ Access Time Short/Long 2sec/5sec

5. GENERAL

① Power requirement ..... Refer to the back panel of the unit
② Power Consumption 410W
③ Dimension (W×H×D) ..... 360×362×374(mm)
④ Weight(net) 10.0kg

NOTE : Specifications are subject to change without notice in the course of product improvement

ADJUSTMENTS

This set has been aligned at the factory and normally will not require further adjustment. As a result, it is not recommended that any attempt is made to modificate any circuit. If any parts are replaced or if anyone tampers with the adjustment, realignment may be necessary.

IMPORTANT

1. Check Power-source voltage.
2. Set the function switch to band being aligned.
3. Turn volume control to minimum unless otherwise noted.
4. Connect low side of signal source and output indicator to chassis ground unless otherwise specified.
5. Keep the signal input as low as possible to avoid AGC and AC action.

TEST & ADJUSTMENT POINT

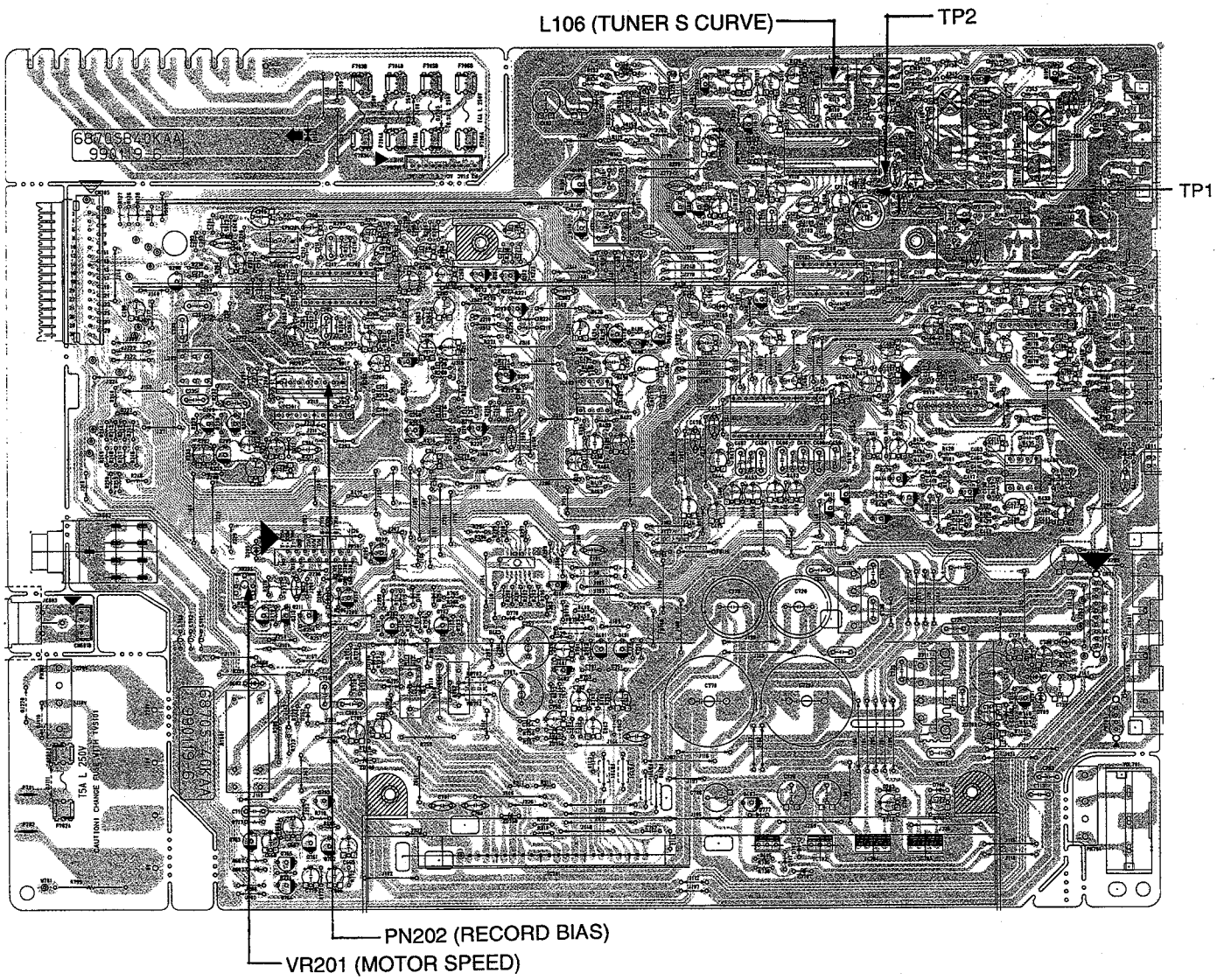


Figure 1. Main P.C. Board

TAPE DECK ADJUSTMENT

1. AZIMUTH ADJUSTMENT

Deck Mode	Test Tape	Test Point	Adjustment	Adjust for
A Deck Playback	MTT-114	Speaker Out	Azimuth Screw	Maximum
B Deck Playback	MTT-114	Speaker Out	Azimuth Screw	Maximum

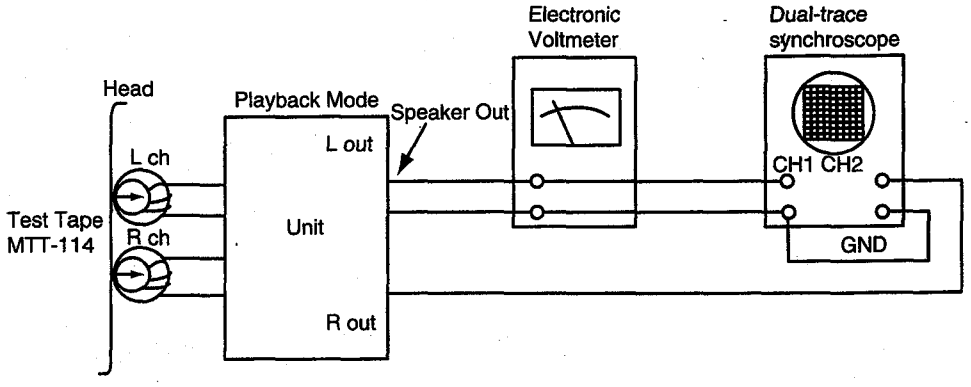


Figure 2. Azimuth Adjustment Connection Diagram

2. MOTOR SPEED ADJUSTMENT

Deck Mode	Test Tape	Test Point	Adjustment	Adjust for	Remark
Normal Speed	MTT-111	Speaker Out	VR201	3kHz±1%	
Hi-Speed	MTT-111	Speaker Out	more than 5.4kHz		High-Speed Dubbing Mode

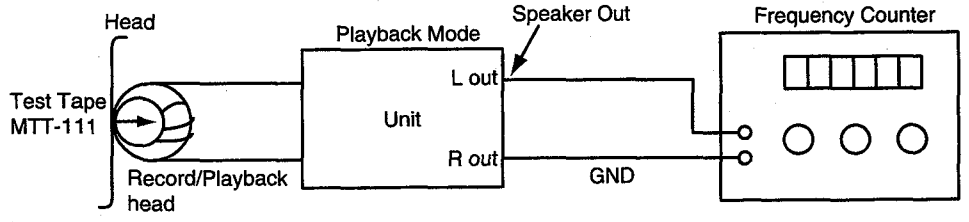


Figure 3. Motor Speed Adjustment Connection Diagram

3. RECORD BIAS ADJUSTMENT

Deck Mode	Test tape	Test Point	Adjustment	Adjust for
Rec/Pause	MTT-5511	Erase Head Wire(PN202)	L203	90kHz±5kHz

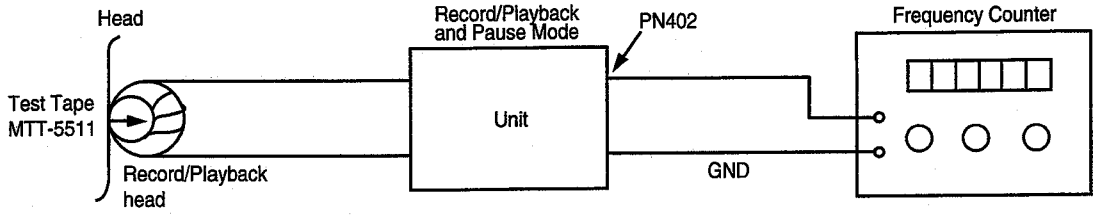


Figure 4. Record Bias Adjustment Connection Diagram

4. TUNER(S curve) ADJUSTMENT

Item	Test Point	Adjustment	Adjust for
DC Voltage	Checker Pin TP1, TP2	L106	OV±50mV

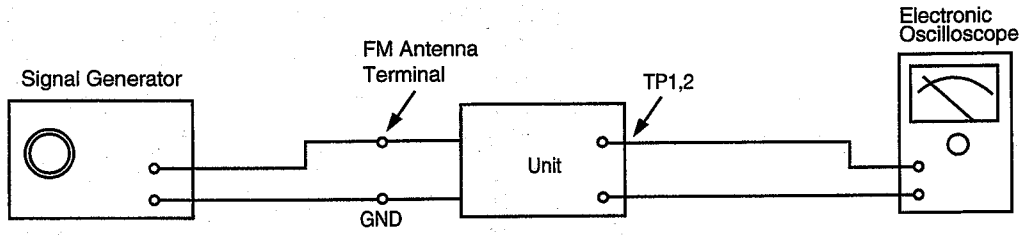
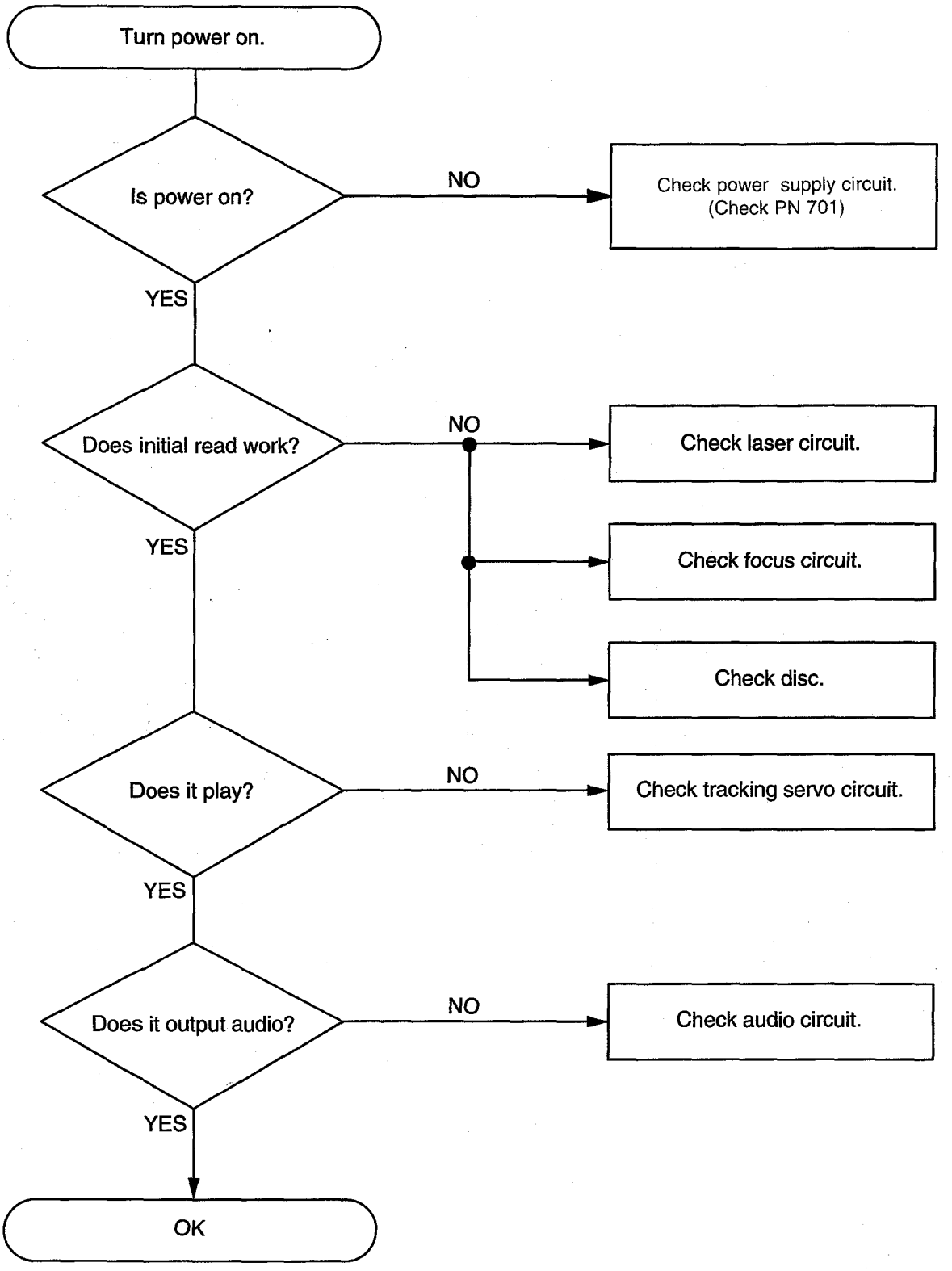
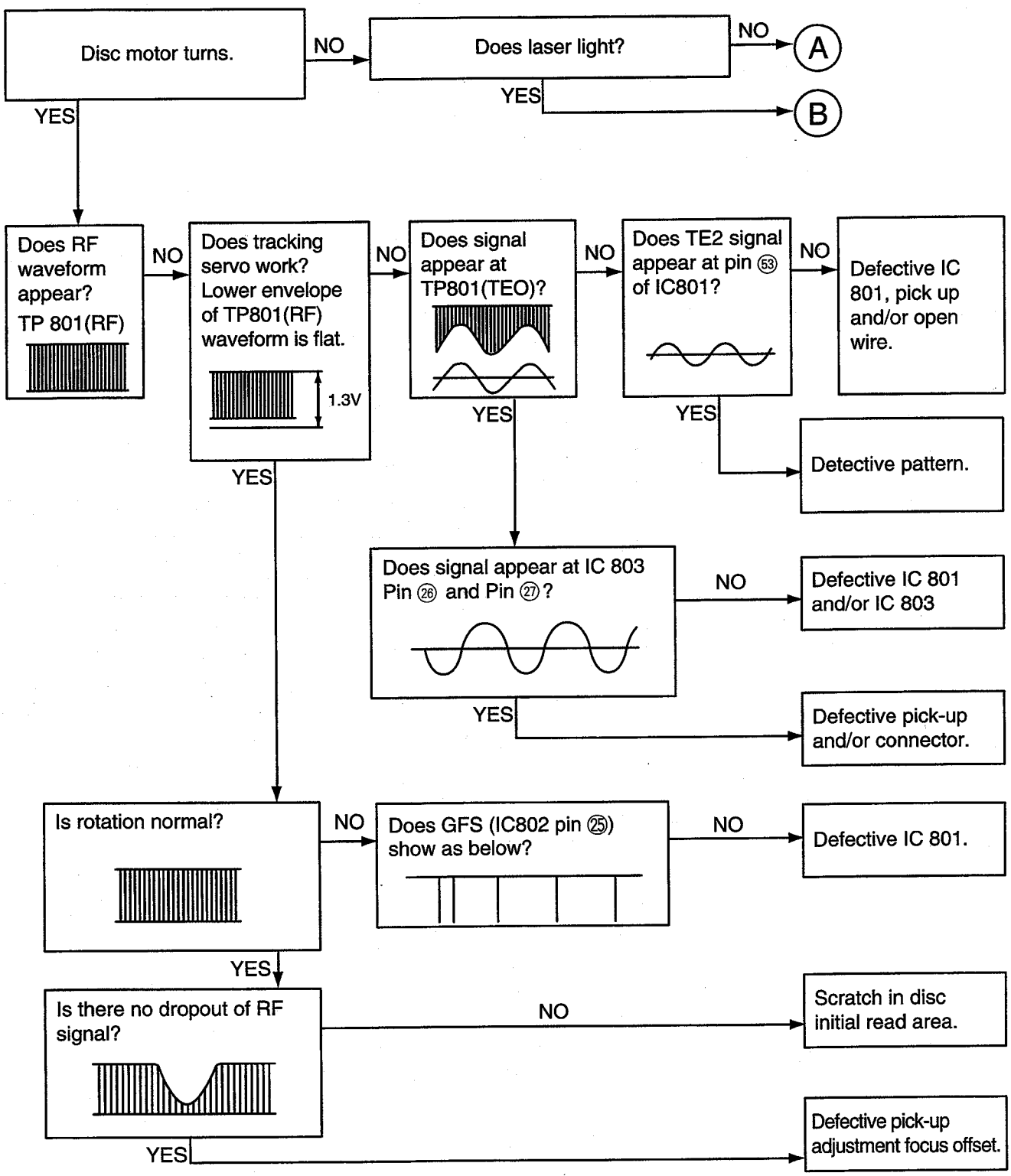


Figure 5. Tuner(S curve) Adjustment Connection Diagram

TROUBLESHOOTING



Fails to initial read



Ⓐ Laser does not light.

Is "3.5V" applied to pin ⑦⓪ of IC 801?

YES

NO

Did pickup return to innermost circular?

NO

Is data transferred from MICOM IC ?

NO

Defective MICOM.

YES

YES

Does voltage appear at IC 803 pin ⑪, ⑫?

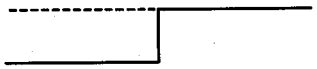
NO

Defective IC 801, 803

YES

Defective slide motor and/or connector.

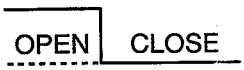
Does it stop at inner pick circular after shift?



YES

Is defect output from LM SW applied to pin ② of PN803?

OPEN CLOSE



NO

Defective LMT SW and/or connector.

YES

Defective MICOM.

YES

Is power supplied to laser Q801? (Q 801 collector: about 1.8V)

NO

Defective connector.

YES

Does laser current flow? 1.0V across R801

R801 ≫ 1.0V

YES

Defective Q 801 and/or laser.

R801 ≪ 1.0V

YES

Defective laser and/or connector.

Ⓑ Laser lights.

Does lens move up/down?

NO

Does IC 801 out focus search signal?

IC 801 pin ㊽ (FEO)

NO

Defective IC801

YES

YES

Is focus search signal applied to pin ⑬ , ⑯ of CN801?

NO

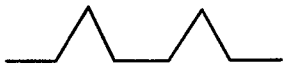
Defective IC803

YES

Open activator and/or connector.

Confirm initial read with disc

Does TP 801 RF signal appear even in low level?

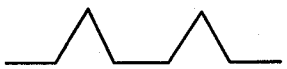


NO

Open connector and/or defective IC 801.

YES

Is laser output adjustment correct?

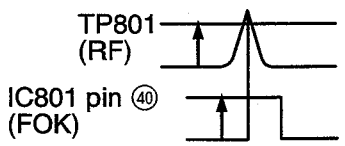


NO

Incorrect turntable height. Degraded laser diode.

YES

Does FOK(focus ok) signal appear?

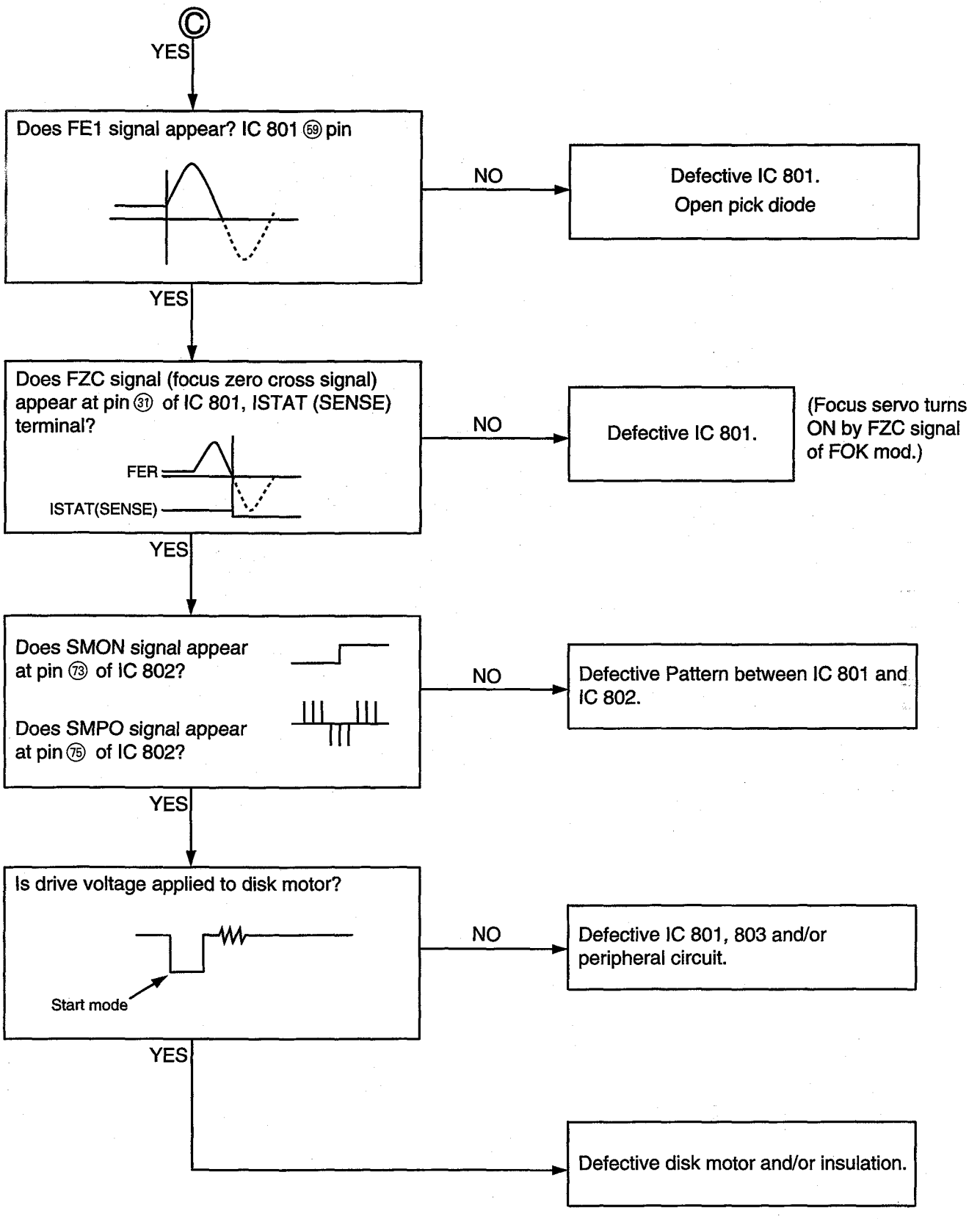


NO

Defective IC 801.

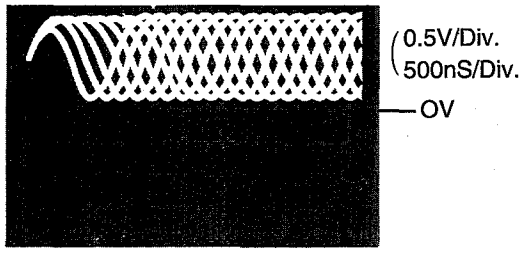
YES

Ⓒ

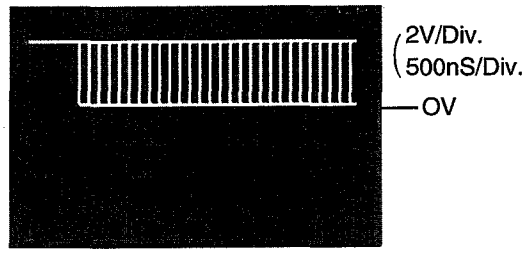

Ⓒ
YES
Does FE1 signal appear? IC 801 ⑲ pin
NO
Defective IC 801.
Open pick diode
YES
Does FZC signal (focus zero cross signal) appear at pin ㉛ of IC 801, ISTAT (SENSE) terminal?
FER
ISTAT(SENSE)
NO
Defective IC 801.
(Focus servo turns ON by FZC signal of FOK mod.)
YES
Does SMON signal appear at pin ⑦③ of IC 802?
Does SMPO signal appear at pin ⑦⑤ of IC 802?
NO
Defective Pattern between IC 801 and IC 802.
YES
Is drive voltage applied to disk motor?
Start mode
NO
Defective IC 801, 803 and/or peripheral circuit.
YES
Defective disk motor and/or insulation.

WAVEFORMS OF MAJOR CHECK POINT

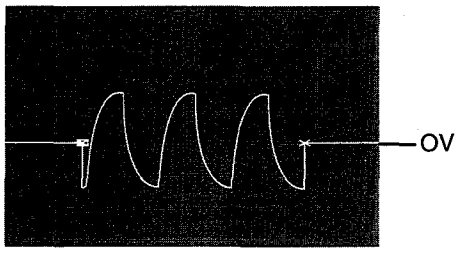
1. HF signal (RF signal) waveform
(Test Point TP801) during normal play



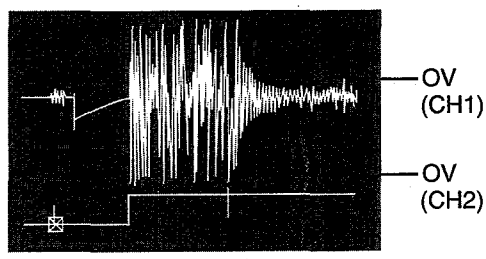
2. EFM signal (pin ㉝ IC 801)waveform
during Normal Play



3. Focus coil drive waveform(Pin NO ① , ② of IC 803)
· When focus search failed or there is no disc on the tray

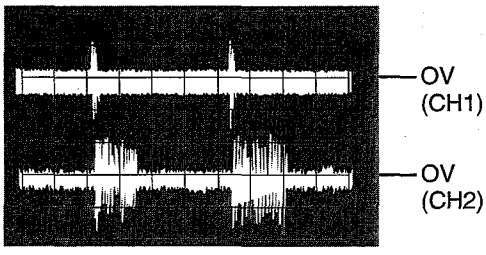


· Focus coil drive waveform(pin NO ①, ② of IC803) and FOK (pin NO ㊵ of IC 801) when focus search is accomplished



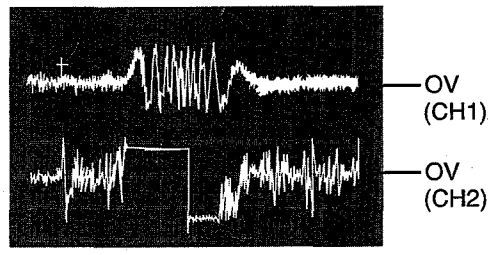
CH1 : FOCUS COIL DRIVE
SIGNAL 2V/Div.
CH2 : FOAK

4. Tracking coil drive waveform (pin NO ㉖ , ㉗ of IC 803)
and TEO during track traverse
(1) When time division is 20nS/div



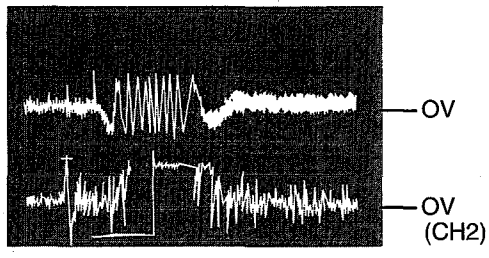
CH1 : TEO(TP801)
1V/Div.
CH2 : TRACK COIL DRIVE
SIGNAL 2V/Div.

(2) When time division 0.5nS/div.
(During forward track traverse)



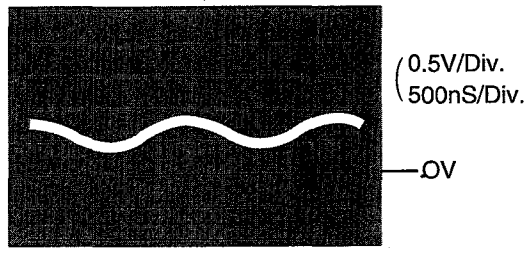
CH1 : TEO(TP801)
1V/Div.
CH2 : TRACKING COIL DRIVE
SIGNAL 2V/Div.

(3) When time division is 0.5nS/div.
(During backward Track Traverse)

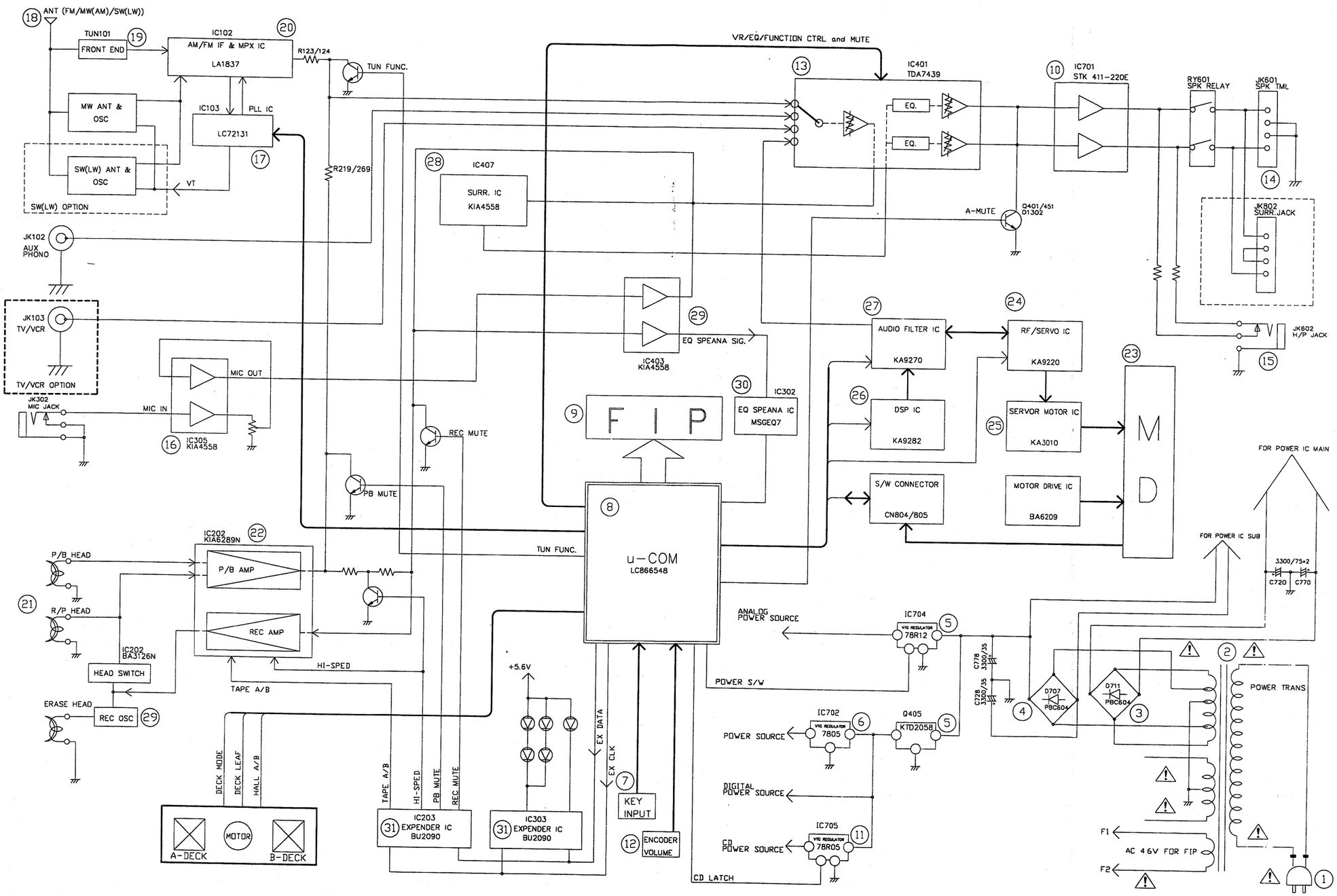


CH1 : TEO(TP801)
1V/Div.
CH2 : TRACKING COIL DRIVE
SIGNAL 2V/Div.

5. Feed motor drive waveform(pin NO ⑪, ⑫ of IC 803)
During normal play

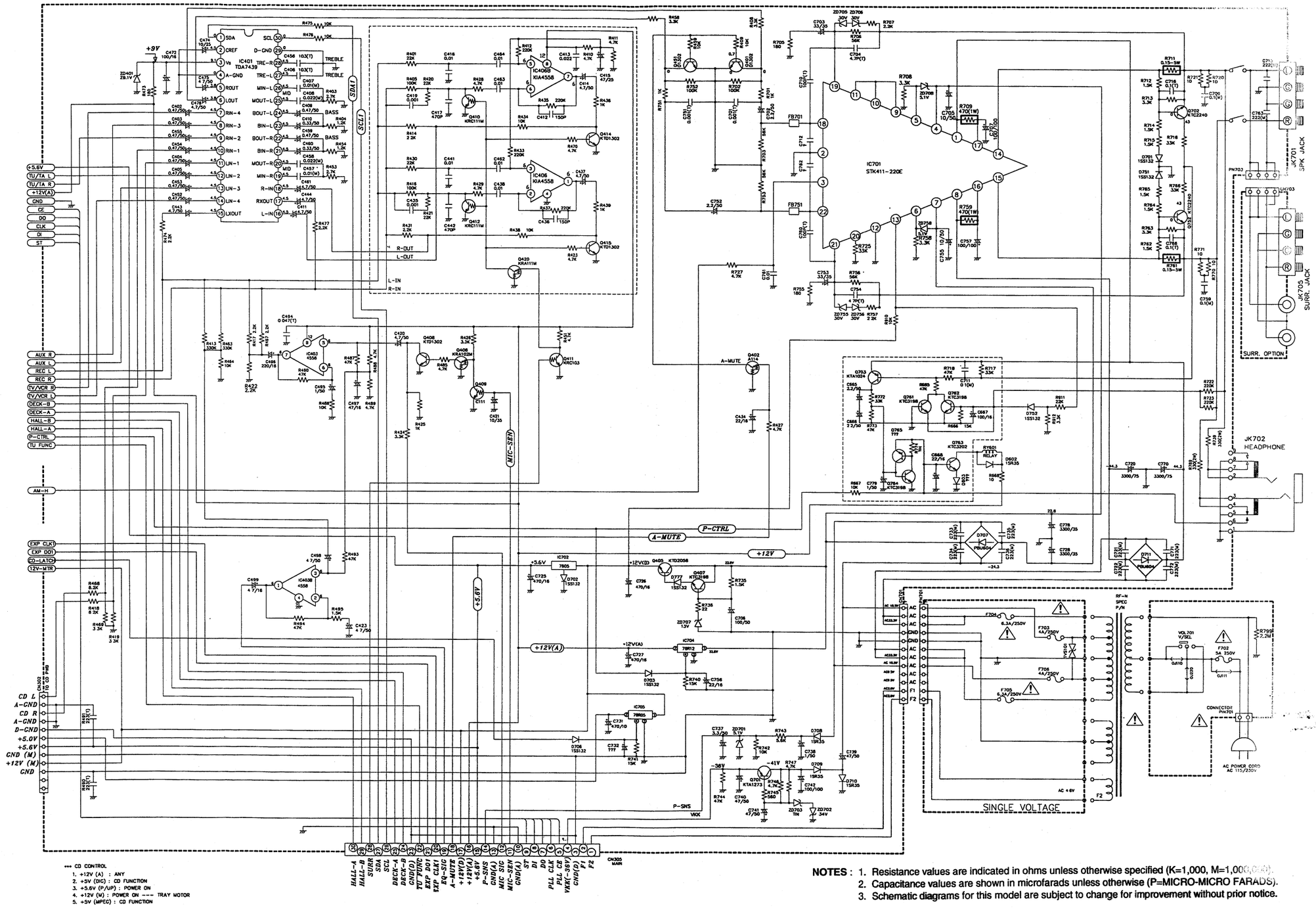


BLOCK DIAGRAM



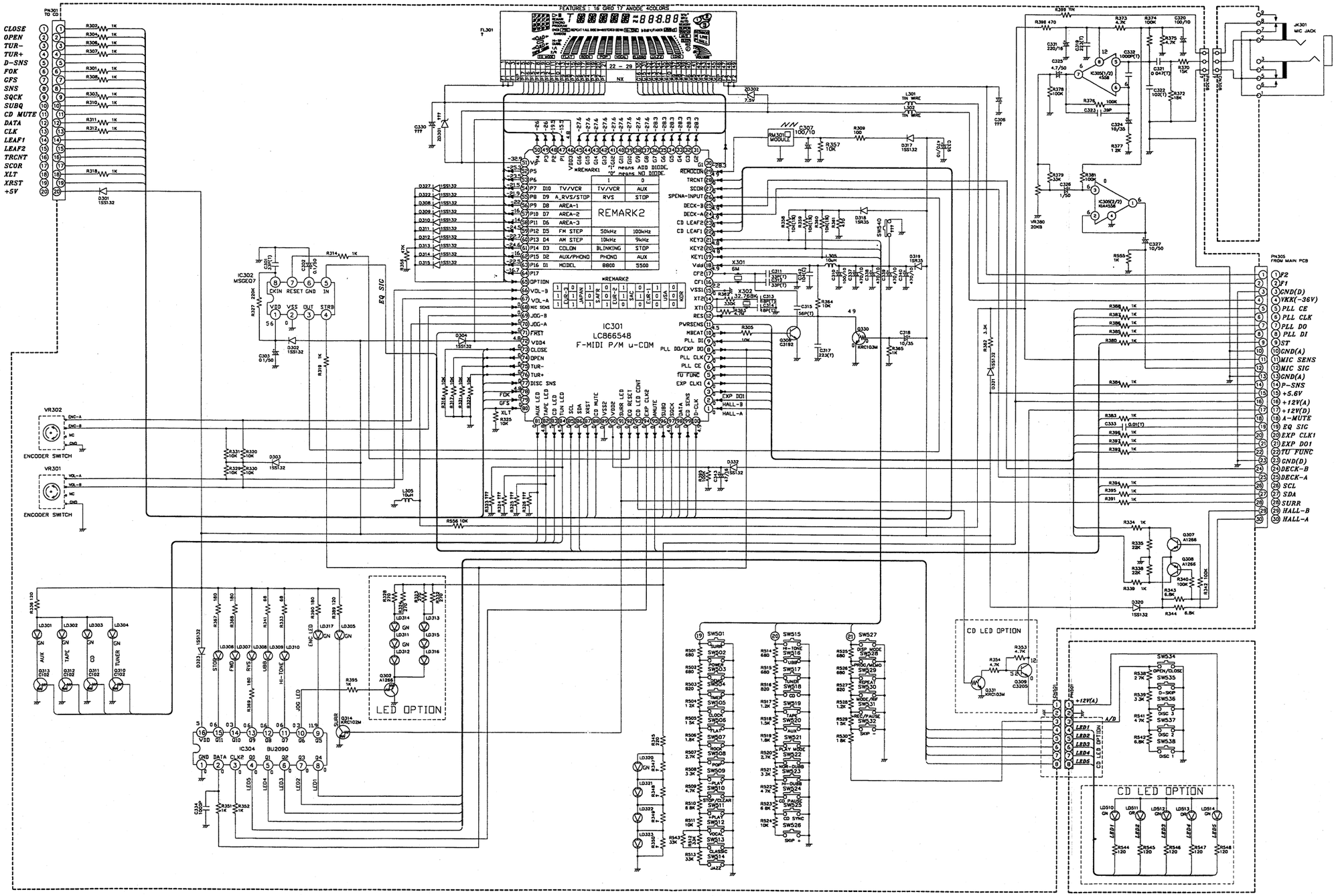
SCHEMATIC DIAGRAM

• POWER CIRCUIT



NOTES : 1. Resistance values are indicated in ohms unless otherwise specified (K=1,000, M=1,000,000).
2. Capacitance values are shown in microfarads unless otherwise (P=MICRO-MICRO FARADS).
3. Schematic diagrams for this model are subject to change for improvement without prior notice.

• FRONT CIRCUIT



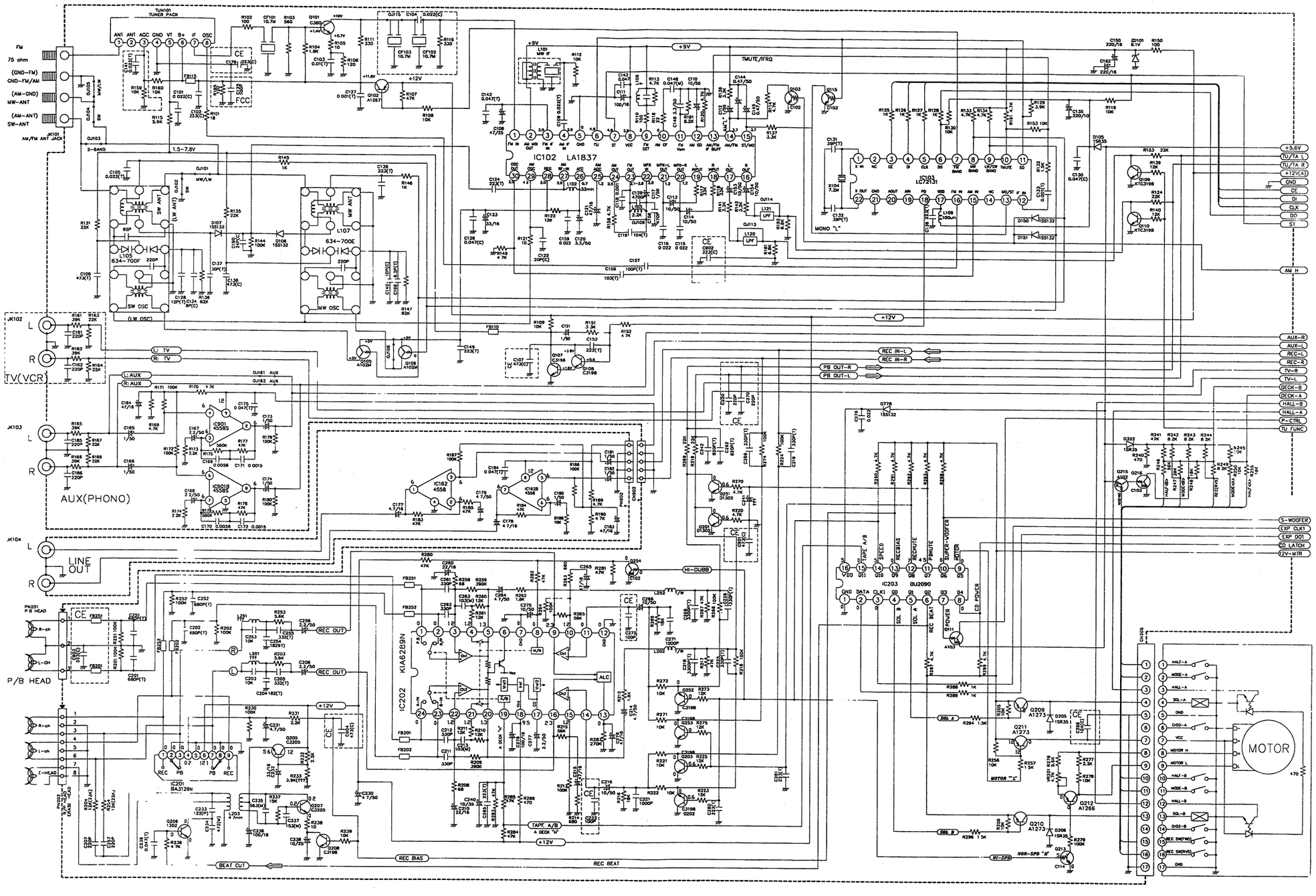
NAME	R1	R2
C102M	10K	10K
C103M	22K	22K
C110M	4.7K	
C111M	10K	

NAME	R1	R2
C114M	47K	

*VOLTAGE DISPLAY : FUNCTION FM 89.1
EQ-PATT FLAT
UBB OFF
ZERO VOLTAGE HEAT SINK

NOTES : 1. Resistance values are indicated in ohms unless otherwise specified (K=1,000, M=1,000,000).
2. Capacitance values are shown in microfarads unless otherwise (P=MICRO-MICRO FARADS).
3. Schematic diagrams for this model are subject to change for improvement without prior notice.

• TUNER & DECK CIRCUIT

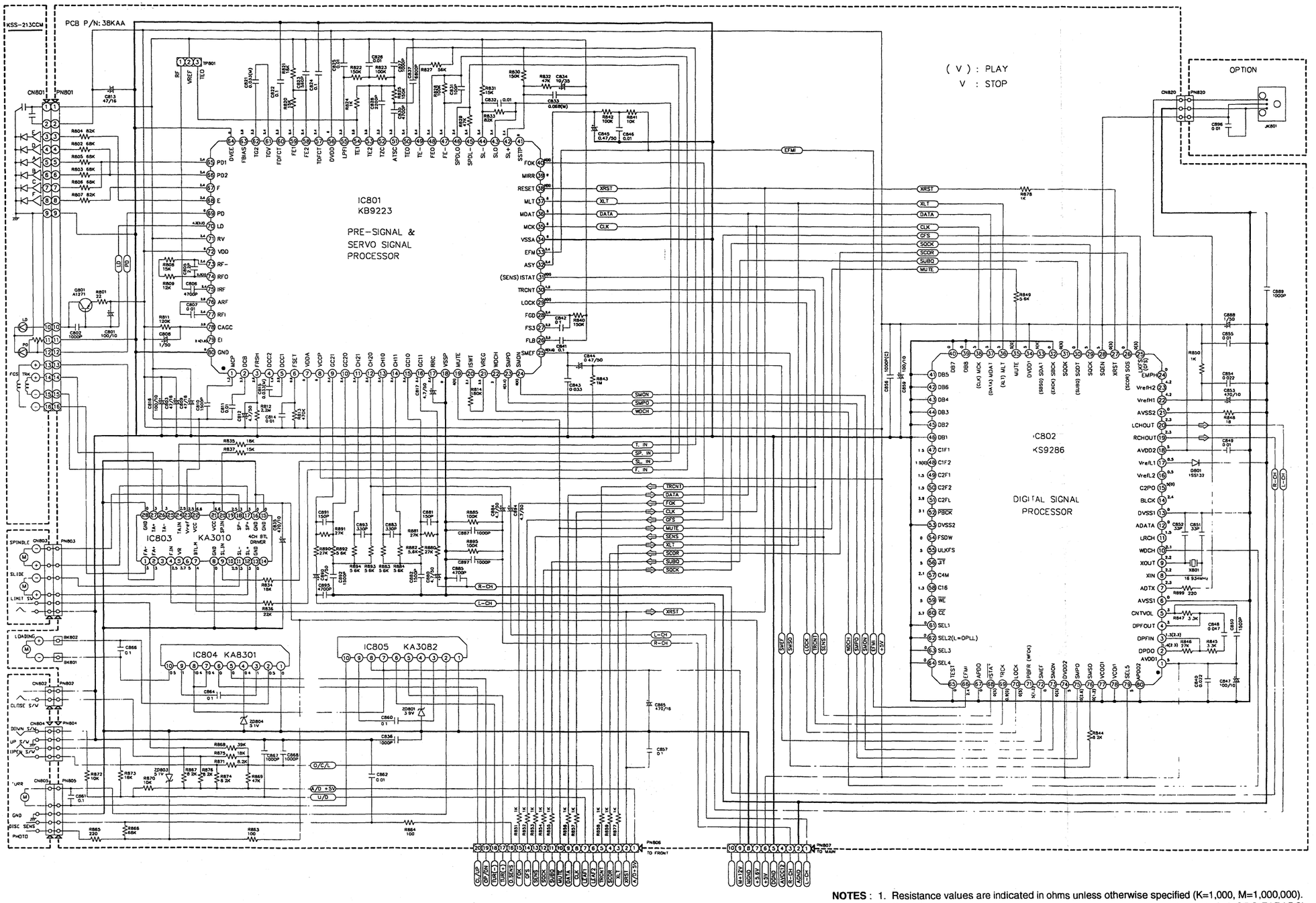


** NOTE
LW BAND: C128(100P)-->ADD
C115/116(0.022-->0.015)-->CHANGE

** NOTE
FFH-5500 R233(3.9K)-->DEL
R204/254(12K-->22K)-->CHANGE

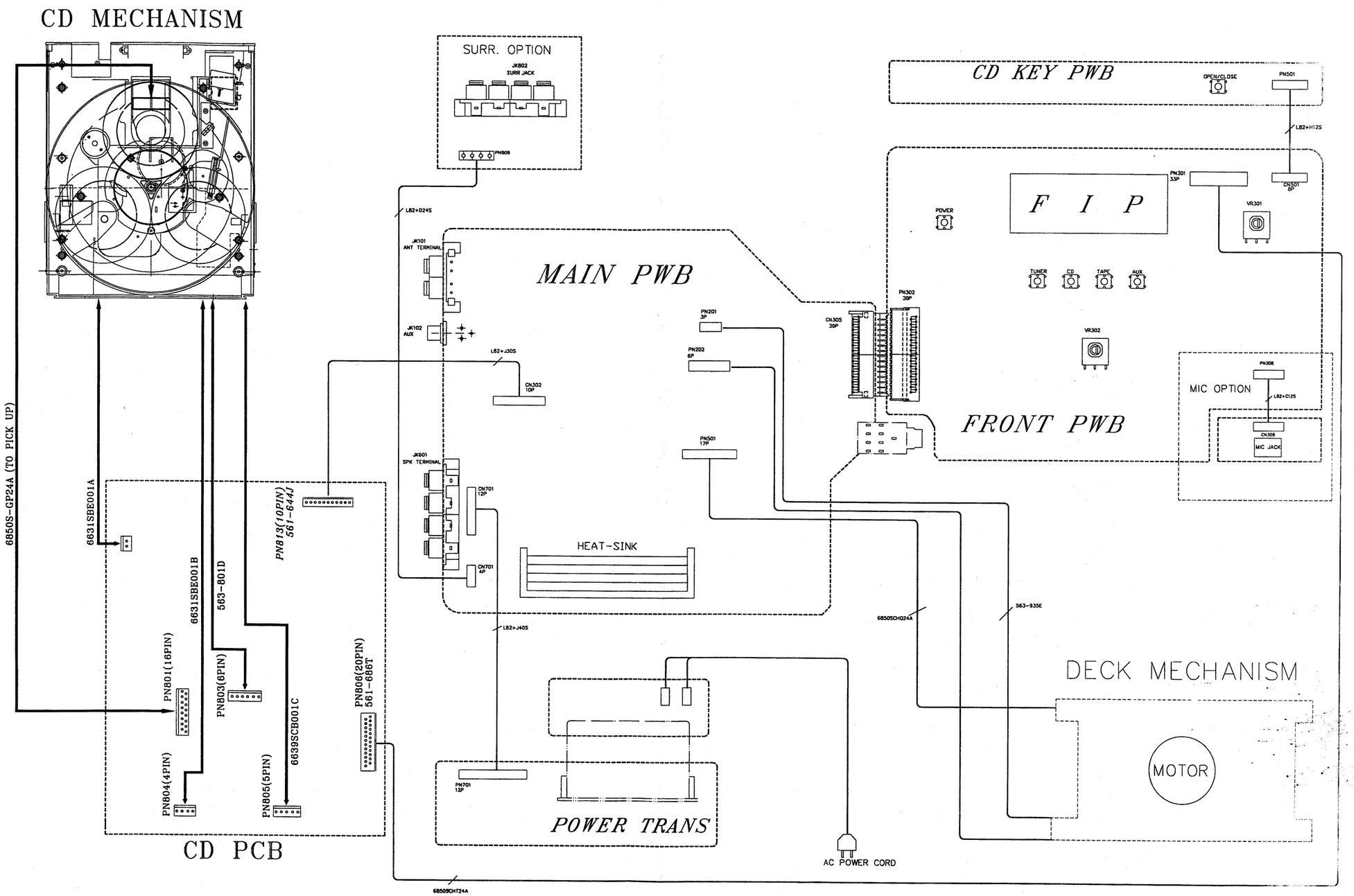
NOTES :
1. Resistance values are indicated in ohms unless otherwise specified (K=1,000, M=1,000,000).
2. Capacitance values are shown in microfarads unless otherwise (P=MICRO-MICRO FARADS).
3. Schematic diagrams for this model are subject to change for improvement without prior notice.

• CD CIRCUIT



NOTES : 1. Resistance values are indicated in ohms unless otherwise specified (K=1,000, M=1,000,000).
2. Capacitance values are shown in microfarads unless otherwise (P=MICRO-MICRO FARADS).
3. Schematic diagrams for this model are subject to change for improvement without prior notice.

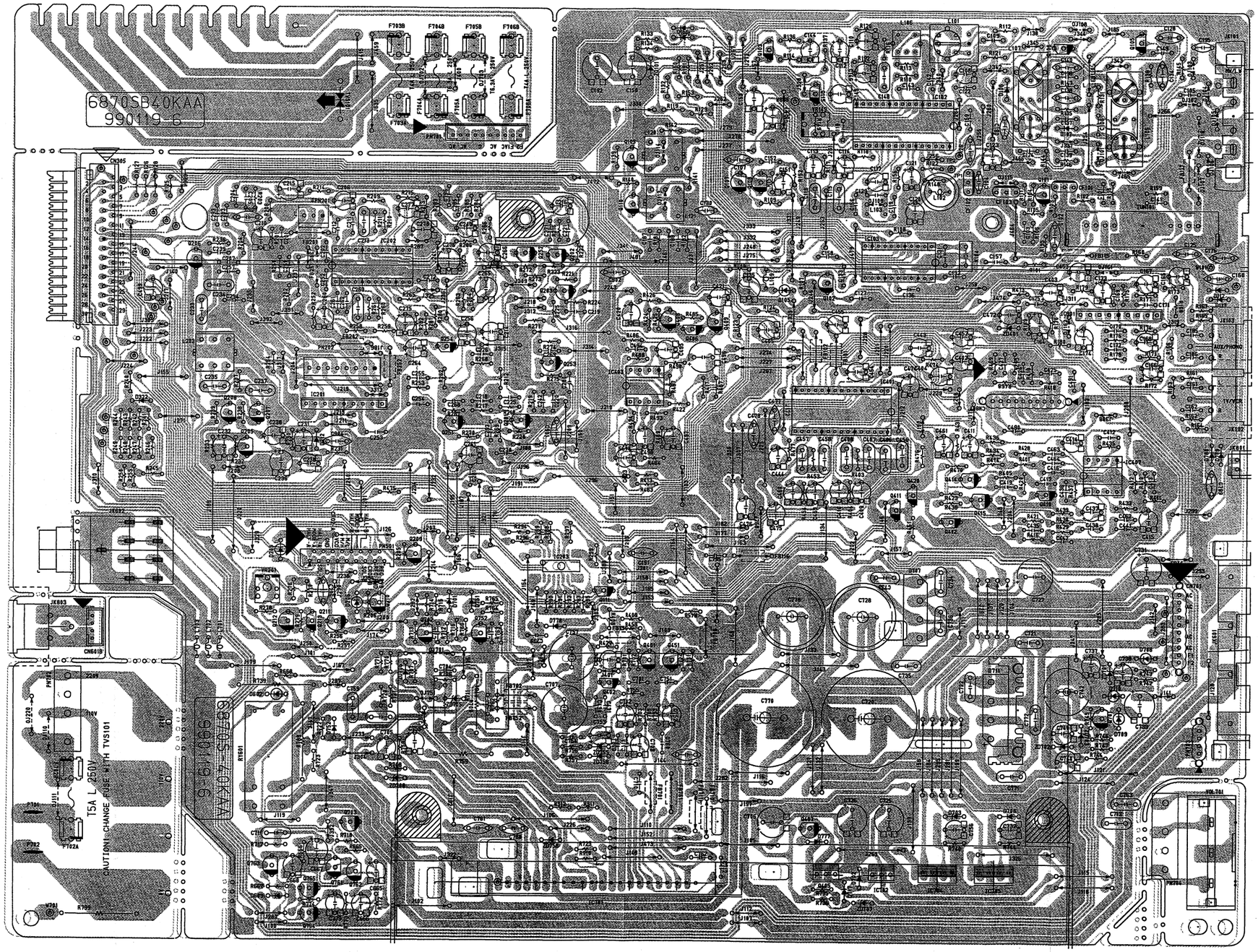
WIRING DIAGRAM



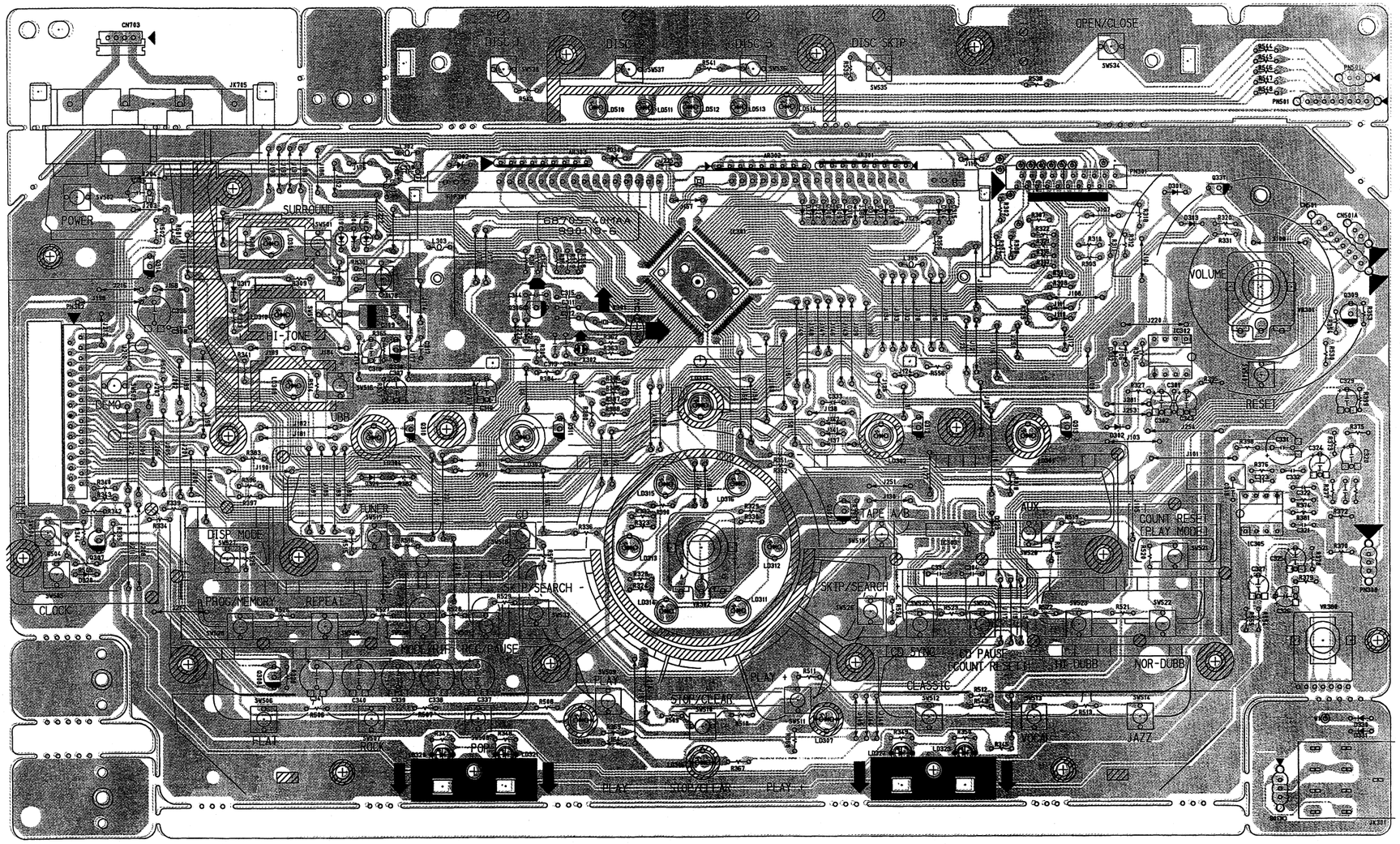
NOTES : Wiring diagram for this model are subject to change for improvement without prior notice.

PCB LAYOUTS

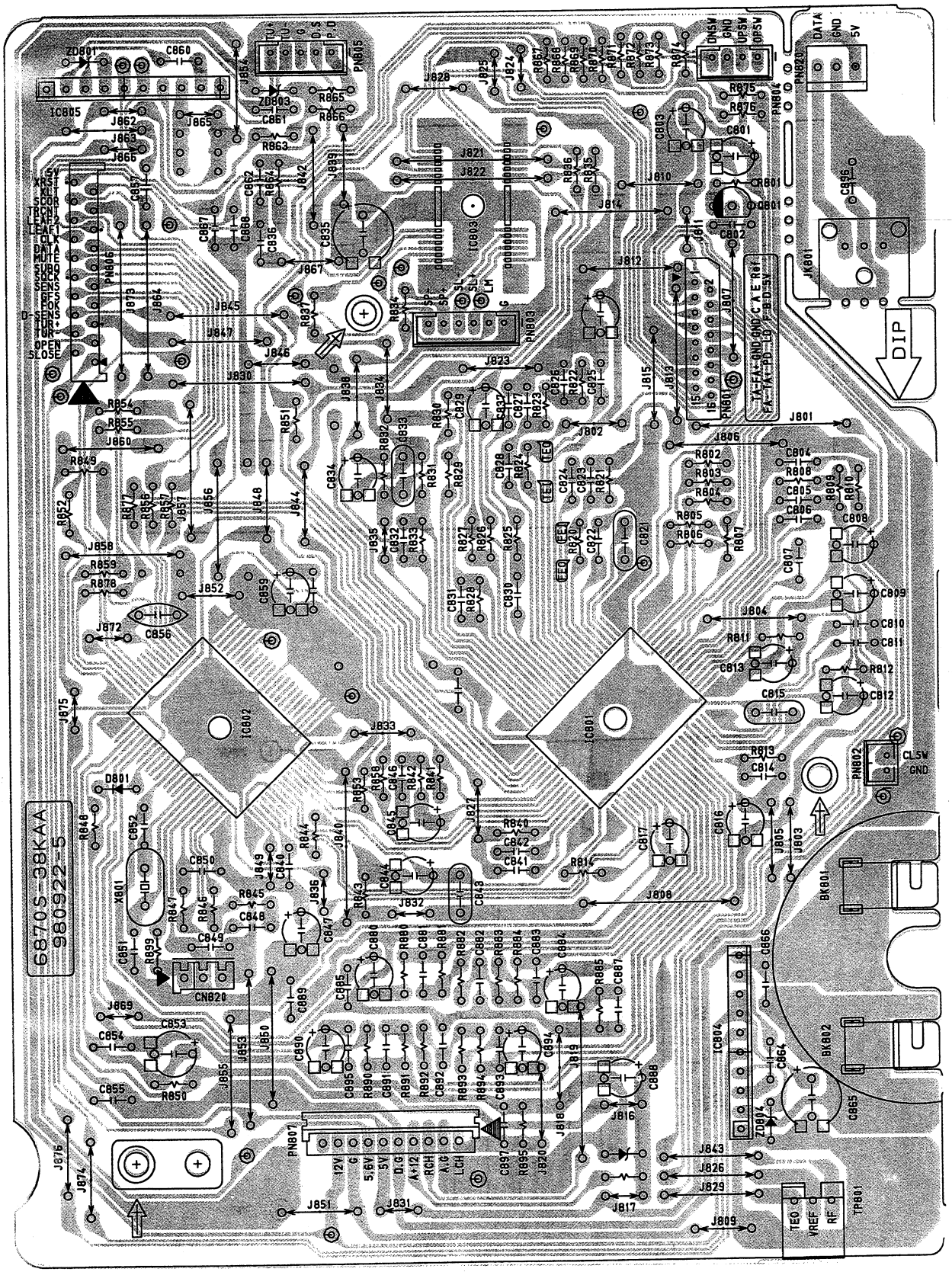
• AMP, TUNER, DECK & POWER P.C. BOARD



• FRONT P.C. BOARD

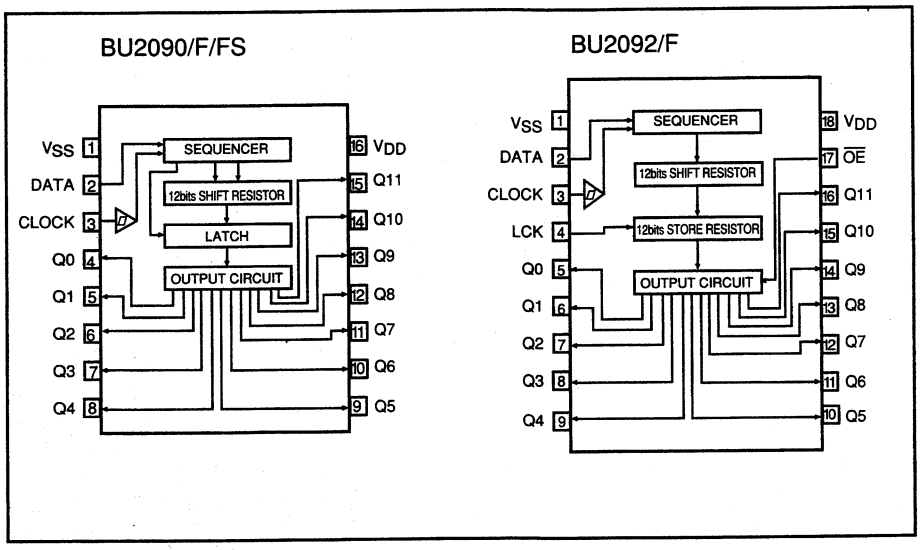


• CD MAIN P.C. BOARD

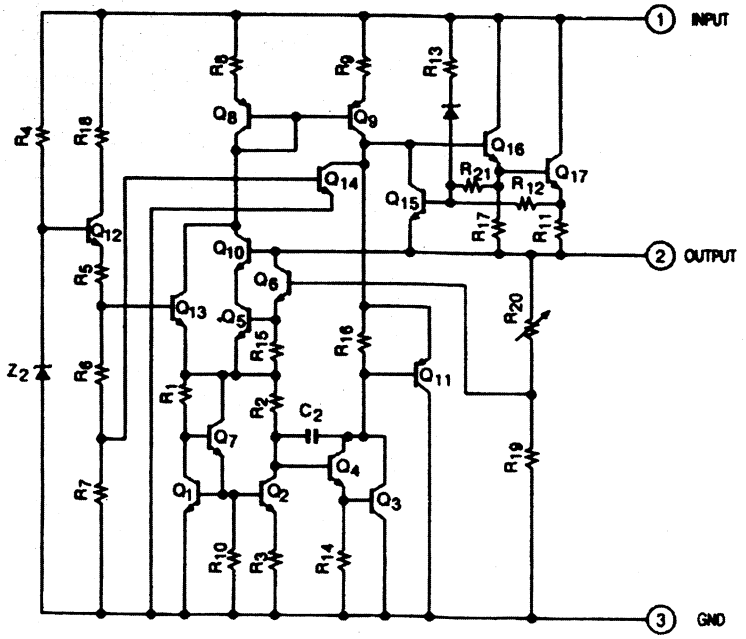


INTERNAL BLOCK DIAGRAM OF ICs

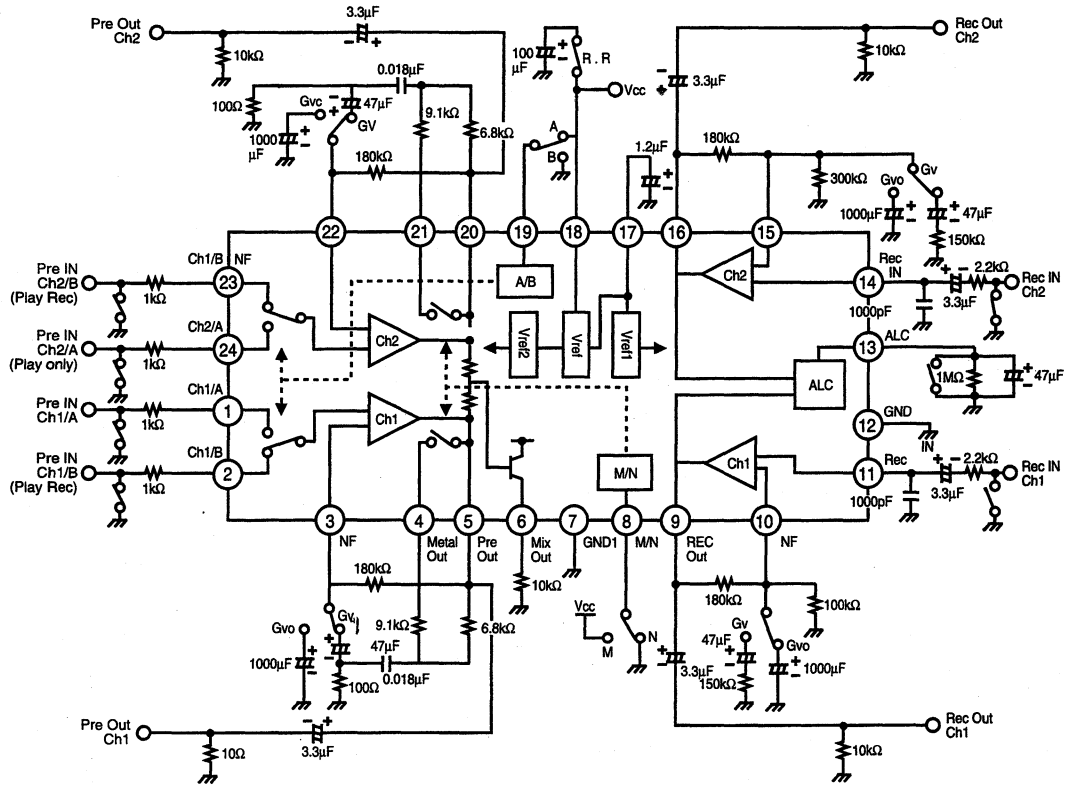
● BU2090/BU2090F/BU2090FS/BU2092/BU2092F



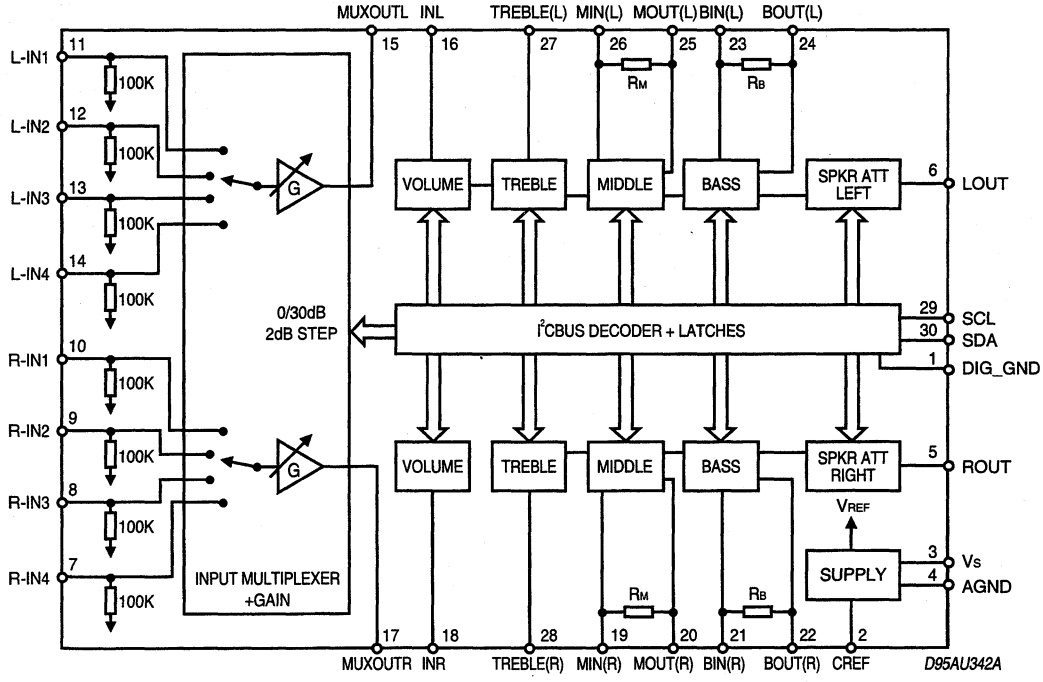
● KIA78XXPI



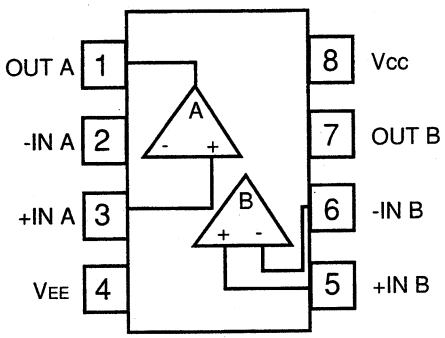
● KIA6289N



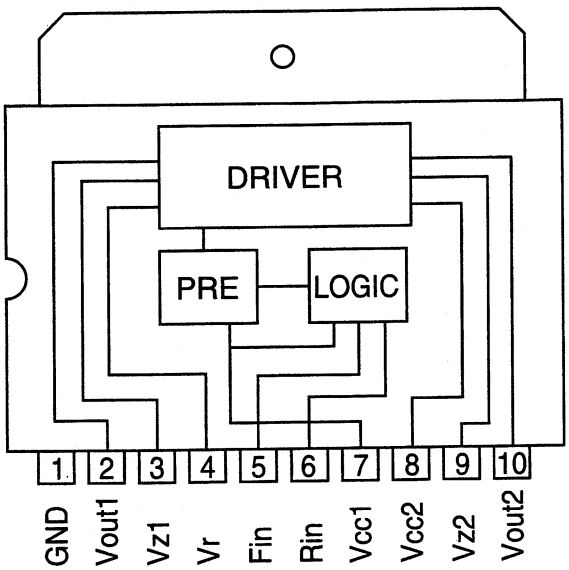
● TDA7439



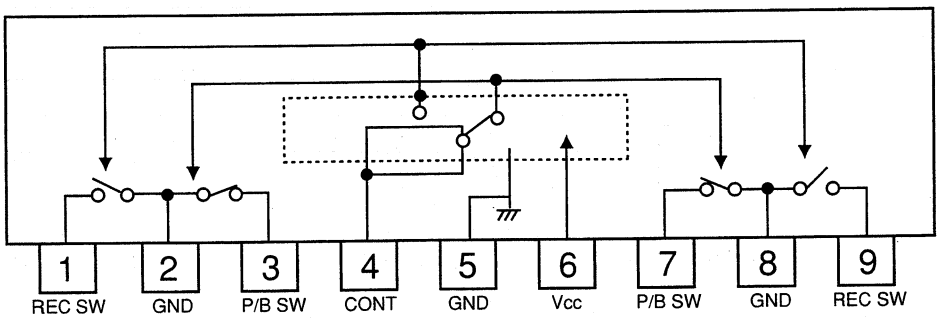
● KIA4558P, KIA4558F



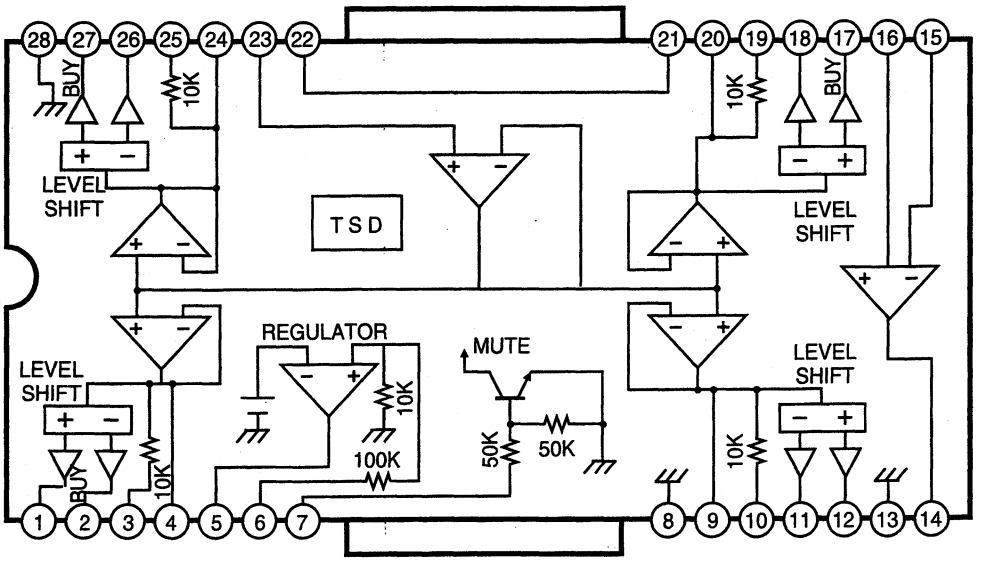
● KA8301



● BA3126N



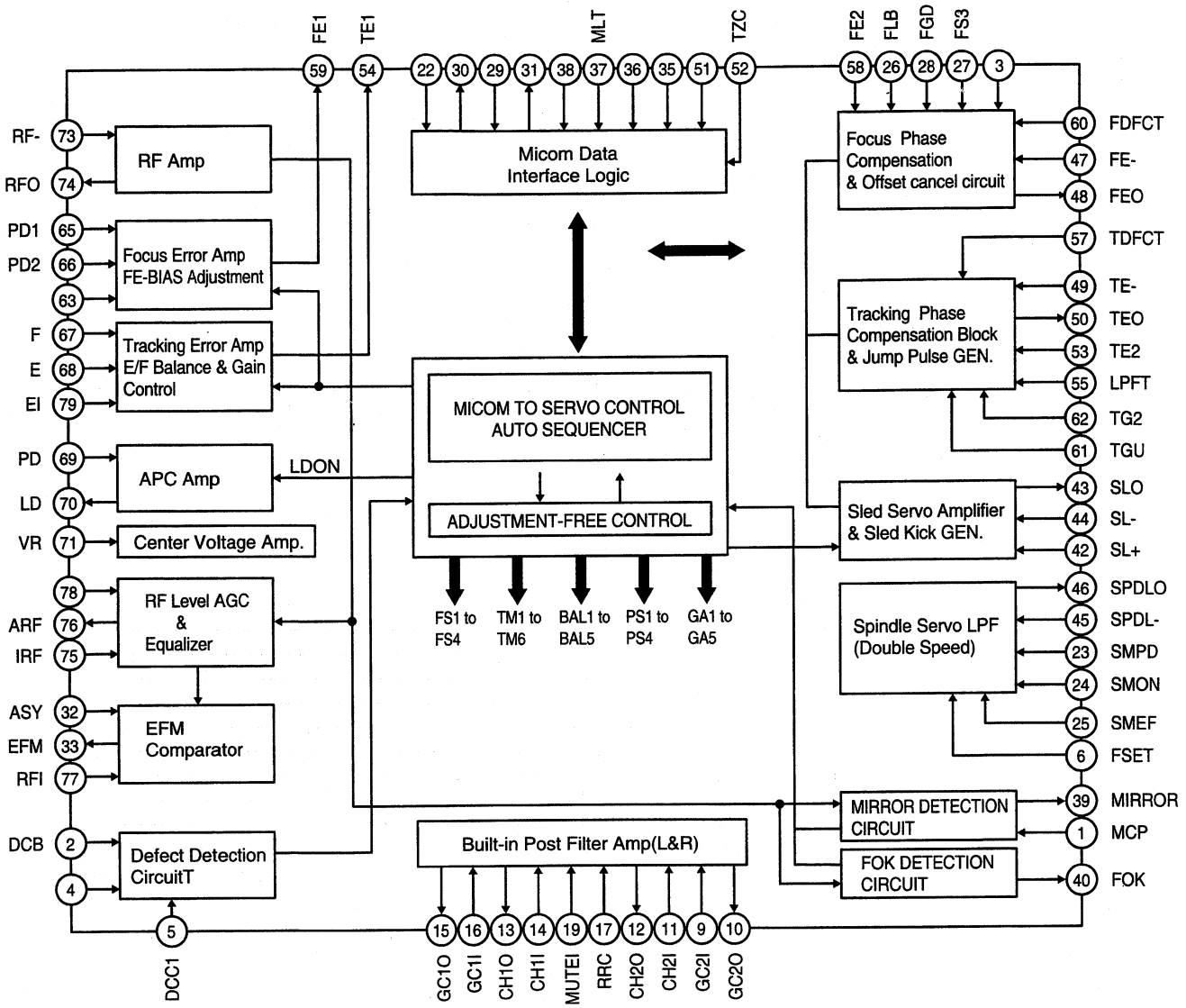
● KA3010



PIN DESCRIPTION

Pin No.	Symbol	I/O	Description
1	DO1.1	O	DRIVE OUTPUT
2	DO1.2	O	DRIVE OUTPUT
3	DI1.1	I	DRIVE INPUT
4	DI1.2	I	DRIVE INPUT
5	REG		REGULATOR
6	REO	O	REGULATOR OUTPUT
7	MUTE		MUTE
8	GND1		GROUND
9	DI2.1	I	DRIVE INPUT
10	DI2.2	I	DRIVE INPUT
11	DO2.1	O	DRIVE OUTPUT
12	DO2.2	O	DRIVE OUTPUT
13	GND2		GROUND
14	OPOUT	O	OPAMP OUTPUT
15	OPIN (-)	I	OPAMP OUTPUT (-)
16	OPIN (+)	I	OPAMP INPUT (+)
17	DO3.1	O	DRIVE OUTPUT
18	DO3.2	O	DRIVE OUTPUT
19	DI3.1	I	DRIVE INPUT
20	DI3.2	I	DRIVE INPUT
21	VCC1		SUPPLY VOLTAGE
22	VCC2		SUPPLY VOLTAGE
23	VREF		2.5V BIAS VOLTAGE
24	DI4.1	I	DRIVE INPUT
25	DI4.2	I	DRIVE INPUT
26	DO4.1	O	DRIVE OUTPUT
27	DO4.2	O	DRIVE OUTPUT
28	GND3		GROUND

● KB9223

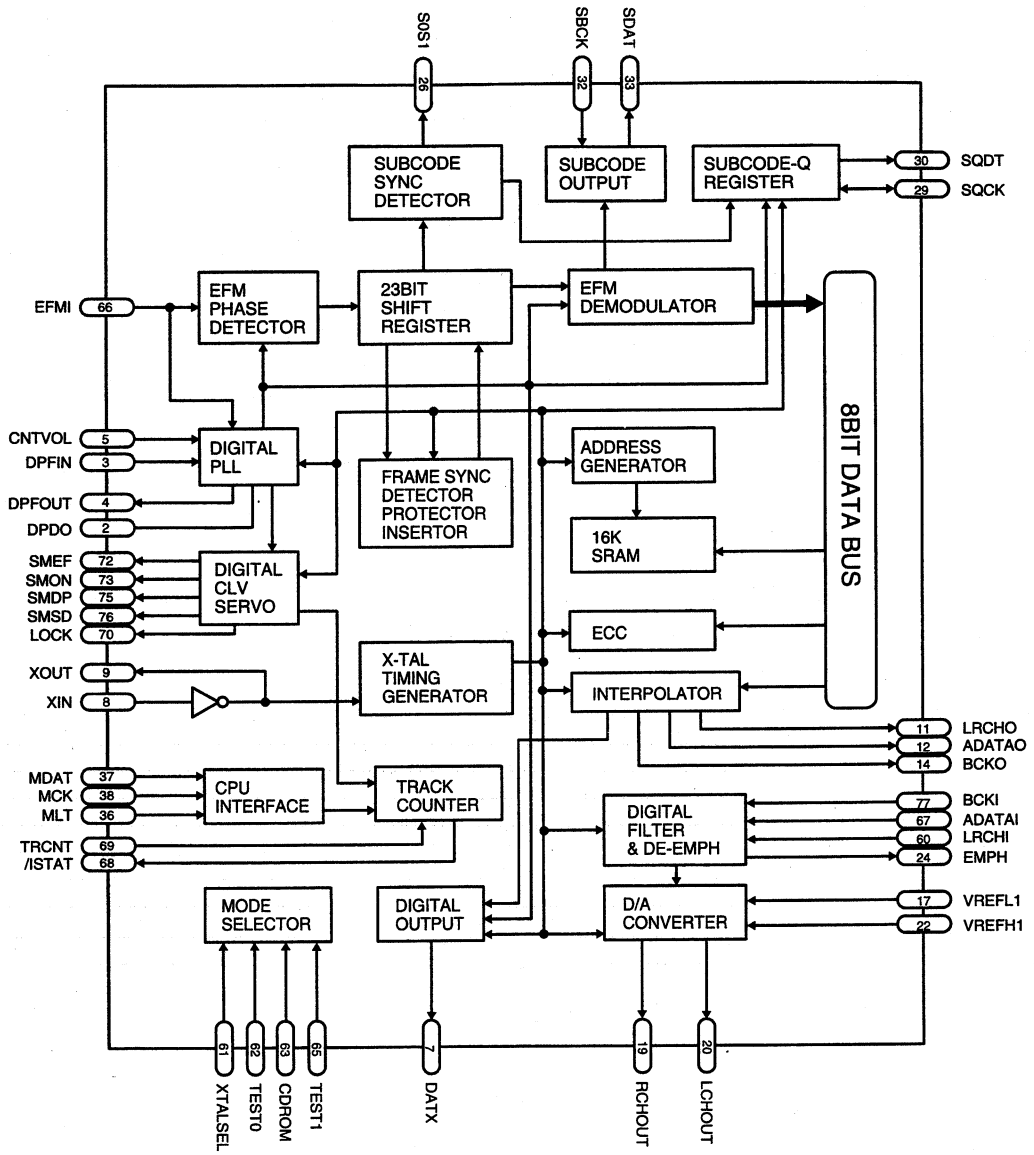


PIN DESCRIPTION

Pin No.	System	Description
1	MCP	Capacitor connection pin for mirror hold
2	DCB	Capacitor connection pin for defect Bottom hold
3	FRSH.	Capacitor connection pin for time constant to generate focus search waveform
4	DCC2	The input pin through capacitor of defect bottom hold output
5	DCC1	The output pin of defect bottom hold
6	FSET	The peak frequency setting pin for focus, tracking servo and cut off frequency of CLV LPF
7	VDDA	Analog VCC for servo part
8	VCCP	VCC for post filter
9	GC2I	Amplifier negative input pin for gain and low pass filtering of DAC output CH2
10	GC2O	Amplifier output pin for gain and low pass filtering of DAC output CH2
11	CH2I	The input pin for post filter channel2
12	CH2O	The output pin for post filter channel2
13	CH1O	The output pin for post filter channl1
14	CH1I	The input pin for post filter channel1
15	GC1O	Amplifier output pin for gain and low pass filtering of DAC output CH1

Pin No.	System	Description
16	GC1I	Amplifier negative input pin for gain and low pass filtering of DAC output CH1
17	RRC	The pin for noise reduction of post filter bias
18	VSSP	VSS for post filter
19	MUTEI	The input pin for post filter muting control
20	ISET	The input pin for current setting of focus search, track jump and sled kick voltage
21	VREG	The output pin of regulator
22	WDCK	The clock input pin for auto sequence
23	SMDP	The input pin of CLV control output pin SMDP of DSP
24	SMON	The input pin for spindle servo ON through SMON of DSP
25	SMEF	The input pin of provide for an external LPF time constant
26	FLB	Capacitor connection pin to perform rising low bandwidth of focus loop
27	FS3	The pin for high frequency gain change of focus loop with internal FS3 switch
28	FGD	Reducing high freqency gain with capacitor between FS3 pin
29	LOCK	Sled runaway prevention pin
30	TRCNT	Track count output pin
31	ISTAT	Internal status output pin
32	ASY	The input pin for asymmetry control
33	EFM	EFM comparator output pin
34	VSSA	Analog VSS for servo part
35	MCK	Micom clock input pin
36	MDATA	Micom data input pin
37	MLT	Micom data latch input pin
38	RESET	Reset input pin
39	MIRROR	The mirror output for test
40	FOK	The output pin of focus OK comparator
41	SSTOP	The pin for detection whether pick_up position is innermost or not
42	SL+	The noninverting input pin of sled servo amplifier
43	SLO	The output pin of sled servo amplifier
44	SL-	The inverting input pin of sled servo amplifier
45	SPDL-	The noninverting input pin of spindle servo amplifier
46	SPDLO	The output pin of spindle servo amplifier
47	FE-	The inverting input pin of focus servo amplifier
48	FEO	The output pin of focus servo amplifier
49	TE-	The inverting input pin of tracking servo amplifier
50	TEO	The output pin of tracking servo amplifier
51	ATSC	The input pin for Anti-shock detection
52	TZC	The comaparator input pin for tracking zero crossing detection
53	TE2	Tracking servo input pin
54	TE1	Tracking error amplifier output pin
55	LPFT	The input pin of tracking error low pass filtering signal
56	DVDD	The power supply pin for logic circuit
57	TDFCT	The capacitor connection pin for tracking defect compensation
58	FE2	Focus servo input pin
59	FE1	Focus error amplifier output pin
60	FDFCT	The capacitor connection pin for focus defect compensation
61	TGU	The capacitor connection pin for high frequency tracking gain switch
62	TG2	The pin for high frequency gain change of tracking servo loop with internal TG2 switch
63	FEBIAS	Focus error bias voltage control pin
64	DVEE	The DVEE pin for logic circuit
65	PD1	The negative input pin of RF I/V amplifier1 (A+C signal)
66	PD2	The negative input pin of RF I/V amplifier2 (B+D signal)
67	F	The negative input pin of F I/V amplifier (F signal)
68	E	The negative input pin of E I/V amplifier (E signal)
69	PD	The input pin for APC
70	LD	The output pin for APC
71	VR	The output pin of (AVEE+AVCC)/2 voltage
72	VCC	VCC for RF part
73	RF-	RF summing amplifier inverting input pin
74	RFO	RF summing amplifier output pin
75	IRF	The input pin for AGC
76	ARF	The output pin for AGC
77	RFI	The input pin for EFM comparating
78	CAGC	The capacitor connection pin for AGC
79	EI	Feedback input pin of E I/V amplifier for EF Balance-control
80	GND	GND for RF part

● KS9286

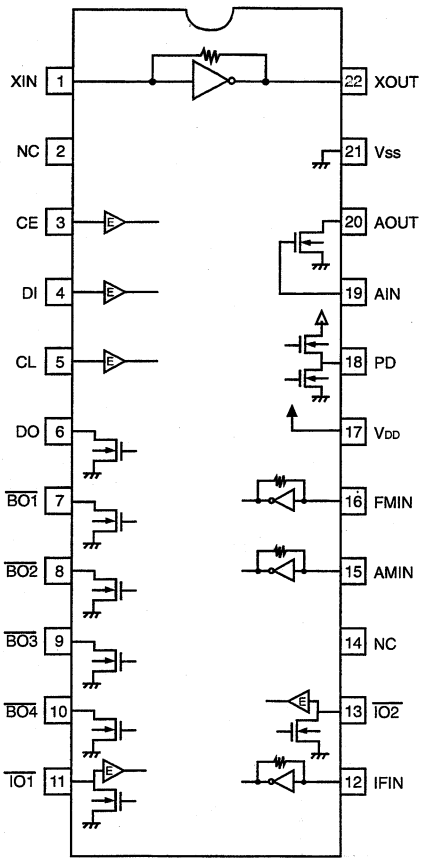


PIN DESCRIPTION

Pin No.	Symbol	IO	Description
1	AVDD1	-	Analog VCC1
2	DPDO	O	Charge pump output for Digital PLL
3	DPFIN	I	Filter input for Digital PLL
4	DPFOUT	O	Filter output for Digital PLL
5	CNTVOL	I	VCO control voltage for Digital PLL
6	AVSS1	-	Analog Ground1
7	DATX	O	Digital Audio output data
8	XIN	I	X' tal oscillator input
9	XOUT	O	X' tal oscillator output
10	WDCHO	O	Word clock output of 48bit/Slot (88.2KHz)
11	LRCHO	O	Channel clock output of 48 bit/Slot (44.1KHz), 88.2KHz when ESP ON
12	ADATAO	O	Serial audio data output of 48 bit/Slot (MSB first), double speed output when ESP ON
13	DVSS1	-	Digital Ground1
14	BCKO	O	Audio data bit clock output of 48 bit/Slot (2.1168MHz), 4.2336MHz when ESP ON
15	C2PO	O	C2 Pointer for output audio data
16	VREFL2	I	Input terminal2 of reference voltage "L" (Floating)

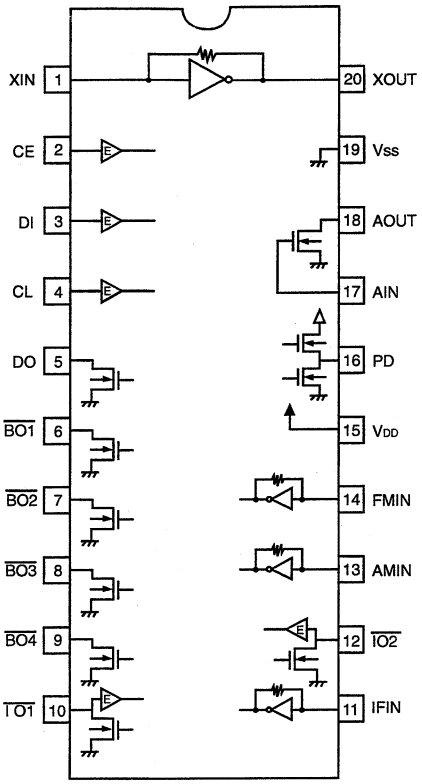
Pin No.	Symbol	IO	Description
17	VREFL1	I	Input terminal1 of reference voltage "L" (GND connection)
18	AVDD2	-	Analog VCC2
19	RCHOUT	O	Right-Channel audio output through D/A converter
20	LCHOUT	O	Left-Channel audio output through D/A converter
21	AVSS2	-	Analog ground2
22	VREFH1	I	Input terminal1 of reference voltage "H" (VDD connection)
23	VREFH2	I	Input terminal2 of reference voltage "H" (Floating)
24	EMPH	O	Emphasis/Non-Emphasis output, H: Emphasis ON, L: Emphasis OFF
25	LKFS	O	The Lock Status output of frame sync
26	S0S1	O	Output of subcode sync signal (S0+S1)
27	RESET	I	System reset at "L"
28	/ESP	I	ESP function ON/OFF control ("L": ESP function ON, "H": ESP function OFF)
29	SQCK	I	Clock for output Subcode-Q data
30	SQDT	O	Serial output of Subcode-Q data
31	SQOK	O	The CRC (Cycle Redundancy Check) check result signal output of Subcode-Q
32	SBCK	I	Clock for output subcode data
33	SDAT	O	Subcode serial data output
34	DVDD1	-	Digital VDD1
35	MUTE	I	Mute control input ("H": Mute ON)
36	MLT	I	Latch Signal Input from Micom (Scmit Trigger)
37	MDAT	I	Signal data input from Micom (Scmit Trigger)
38	MCK	I	Signal clock Input from Micom (Scmit Trigger)
39	DB8	I/O	SRAM data I/O port 8 (MSB)
40	DB7	I/O	SRAM data I/O port 7
41	DB6	I/O	SRAM data I/O port 6
42	DB5	I/O	SRAM data I/O port 5
43	DB4	I/O	SRAM data I/O port 4
44	DB3	I/O	SRAM data I/O port 3
45	DB2	I/O	SRAM data I/O port 2
46	DB1	I/O	SRAM data I/O port 1 (LSB)
47	C1F1	I/O	Monitoring output for C1 error correction (RA1)
48	C1F2	I/O	Monitoring output for C1 error correction (RA2)
49	C2F1	I/O	Monitoring output for C2 error correction (RA3)
50	C2F2	I/O	Monitoring output for C2 error correction (RA4)
51	C2FL	I/O	C2 decoder flag (RA5, "H": When one processing C2 code is impossible correction status.)
52	/PBCK	I/O	Output of VCO/2 (4.3218MHz) (RA6)
53	DVSS2	I/O	Digital ground 2
54	FSDW	I/O	Window or unprotected frame sync (RA7)
55	ULKFS	I/O	Frame sync protection state (RA8)
56	/JIT	I/O	Display of either RAM overflow onncerflow for ±4 frame jitter margin (RA9)
57	C4M	I/O	Only monitoring signal (4.2336M .. RA10)
58	C16M	I/O	16.9344MHz signal output (RA11)
59	/WE	I/O	Terminal for test
60	/CS	I/O	Terminal for test
61	XTALSEL	I	Mode Selection1 (H: 33.8688MHz, L: 16.9344MHz)
62	TEST0	I	TEST input terminal (GND connection)
63	CDROM	I	Mode Selection2 (H: CD-ROM, L: CDP)
64	SRAM	I	TEST input terminal (GND connection)
65	TEST1	I	TEST input terminal (GND connection)
66	EFMI	I	EFM signal input
67	ADATAI	I	Serial audio data input of 48 bit/Slot (MSB first)
68	/ISTAT	O	The internal status output
69	TRCNT	I	Tracking counter input signal
70	LOCK	O	Output signal of LKFS condition sampled PBFR/16 (if LKFS is "H", LOCK is "H", if LKFS is sampled "L" at least 8 times by PBFR/16, LOCK is "L".)
71	PBFR	O	Write frame clock (Lock: 7.35KHz)
72	SMEF	O	LPF time constant control of the spindle servo error signal
73	SMON	O	ON/OFF control signal for spindle servo
74	DVDD2	-	Digital VDD2
75	SMDP	O	Spindle Motor drive (Rough control in the SPEED mode, Phase control in the PHASE mode)
76	SMSD	O	Spindle Motor drive (Velocity control in the PHASE mode)
77	BCKI	I	Audio data bit clock input of 48 bit/Slot (2.1168MHz)
78	TESTV	I	TEST input terminal (GND connection)
79	DSPEED	I	TEST input terminal (VDD connection)
80	LRCHI	I	Channel clock input of 48 bit/Slot (44.1KHz)

• LC72131



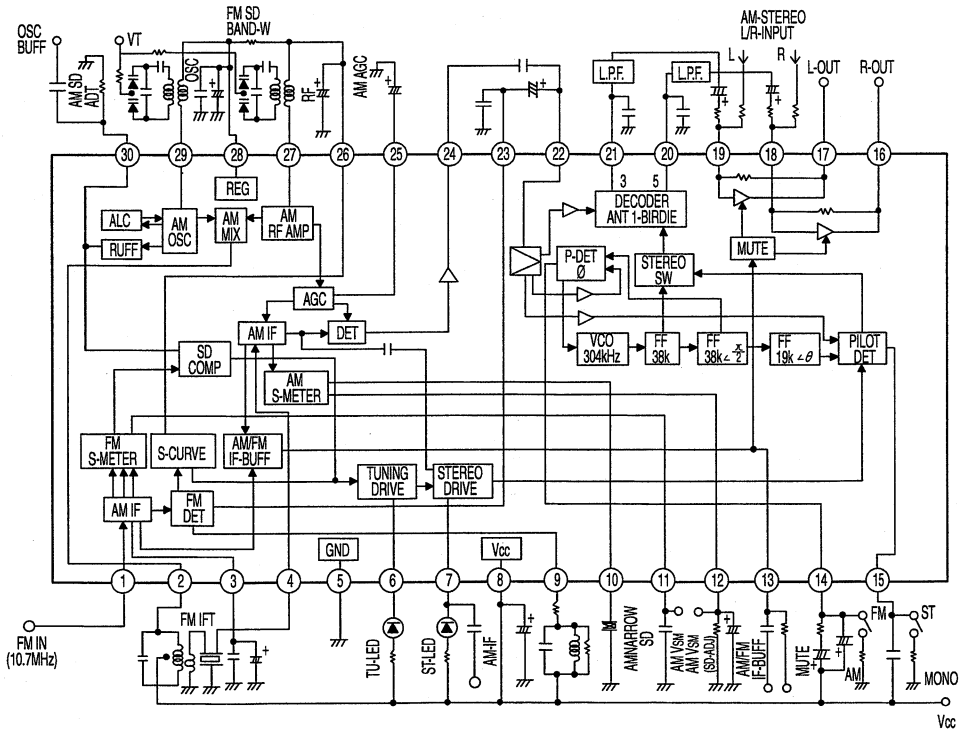
Top view

• LC72131M

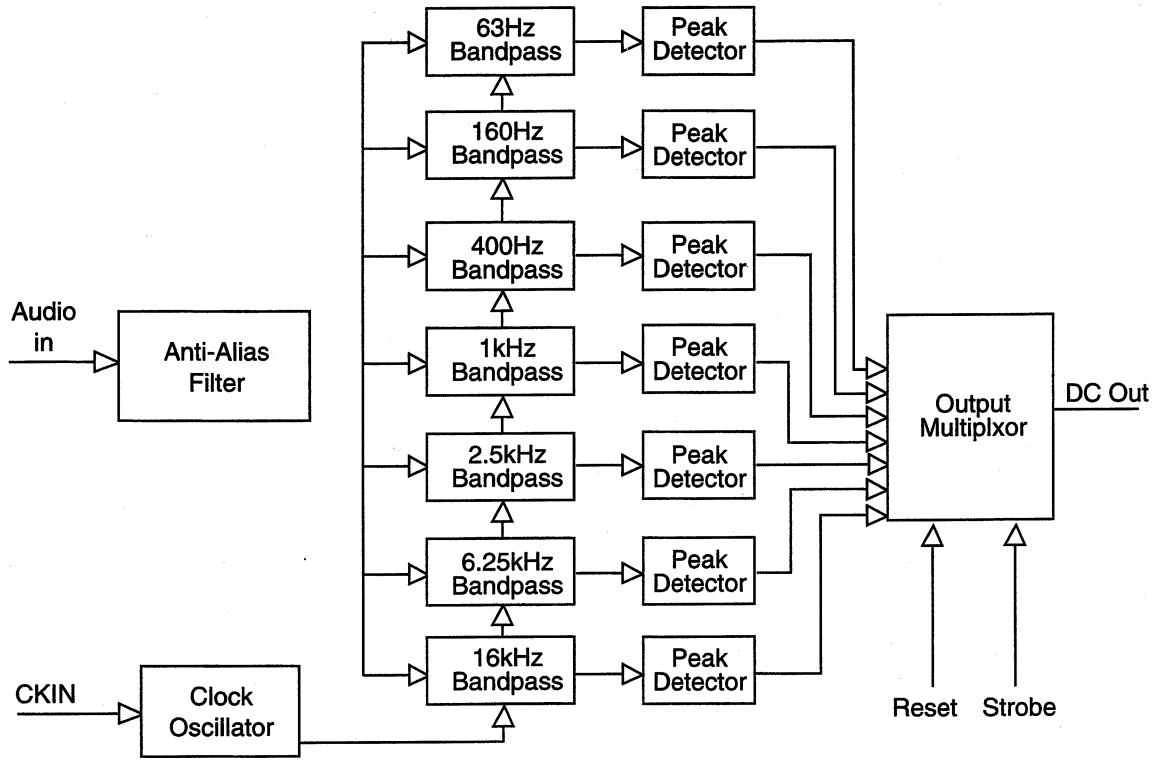


Top view

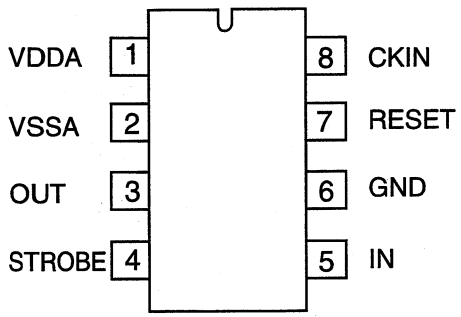
• LA1837



• MSGEQ7



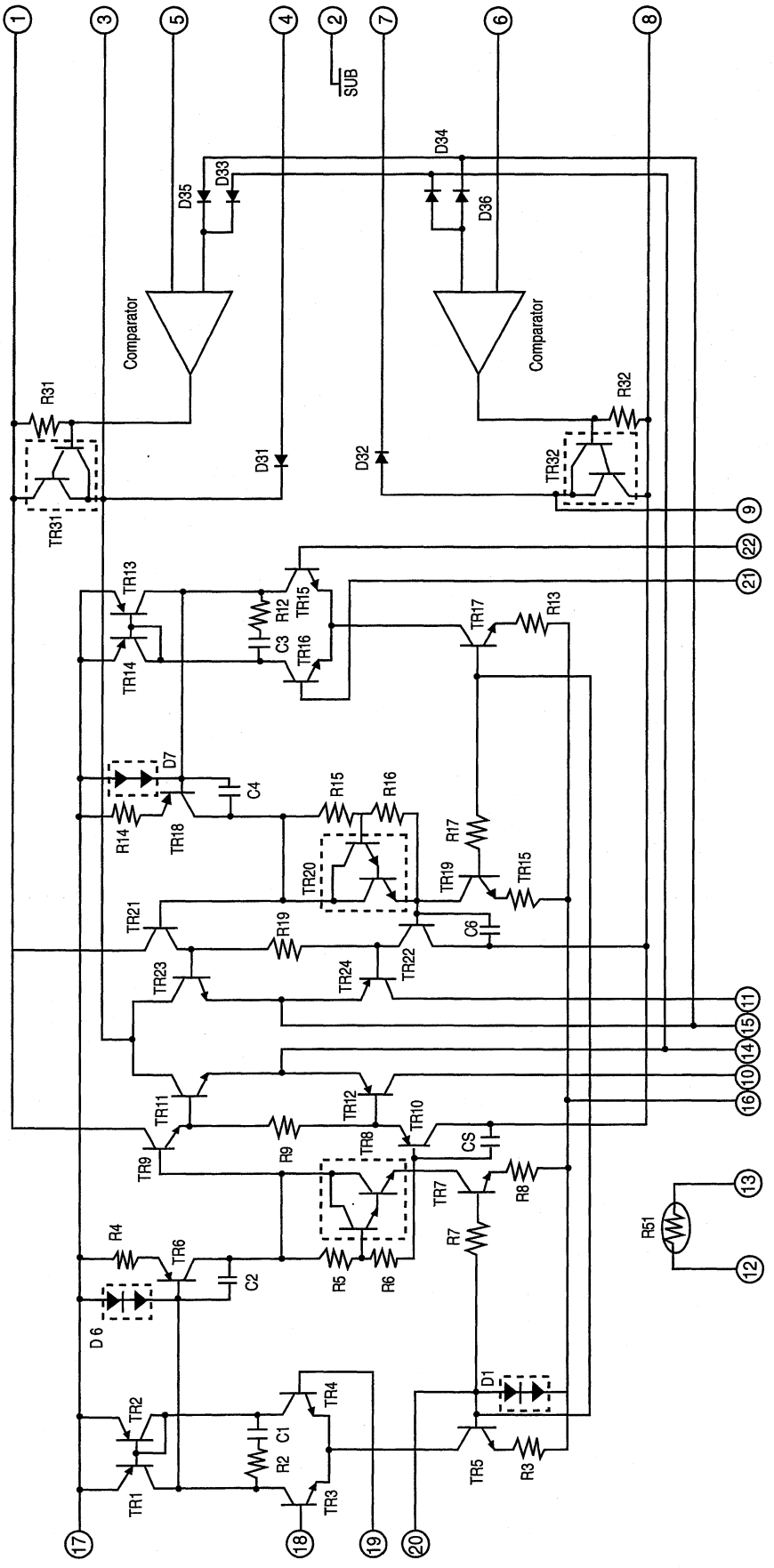
PIN CONFIGURATION



PIN DESCRIPTION

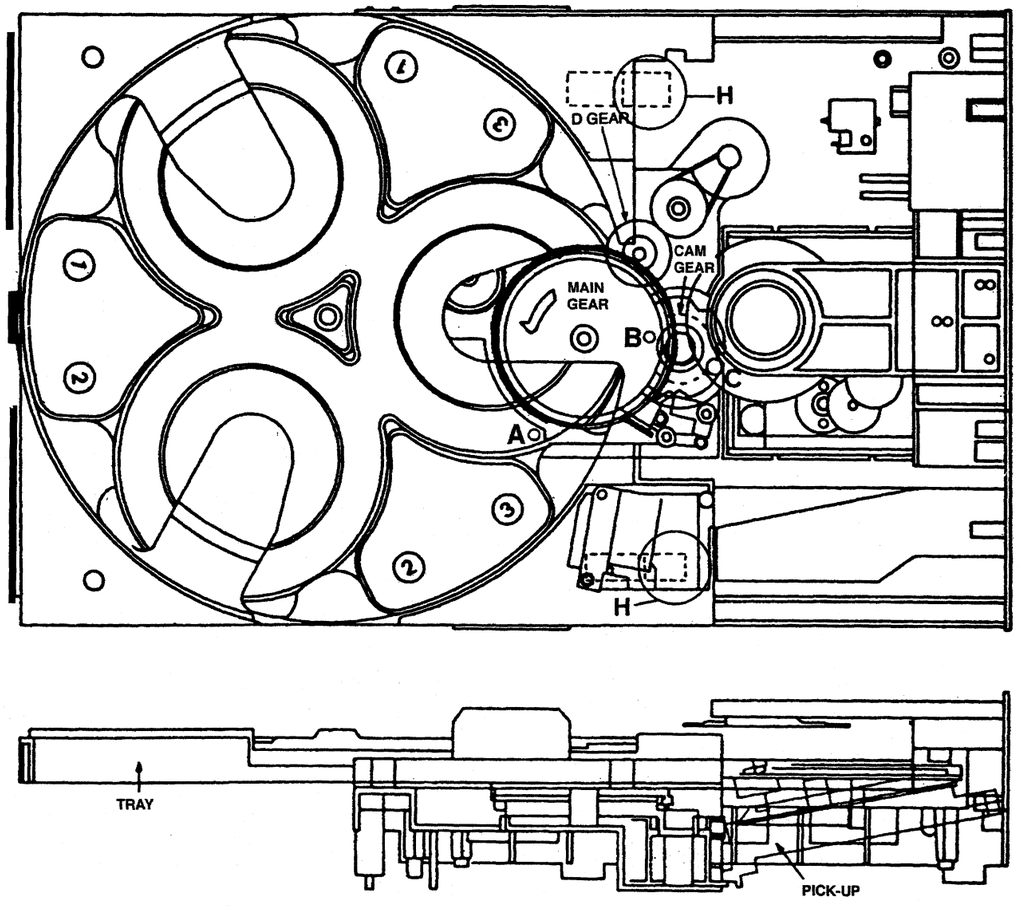
Pin No.	Symbol	Description
1	VDD	Positive Power Supply Typically 5 Volts
2	VSS	Negative Power Supply Typically 0 Volts
3	OUT	Multiplexed DC Output
4	STROBE	Channel Selection Pin
5	IN	Audio Input
6	GND	Internally Generated Ground Reference. Typically 2.5V
7	RESET	Resets Multiplexor
8	CKIN	Clock Oscillator Pin

●STK411-220E


SUB
Comparator
Comparator
D31
D32
D33
D34
D35
D36
R31
R32
TR31
TR32
TR1
TR2
TR3
TR4
TR5
TR6
TR7
TR8
TR9
TR10
TR11
TR12
TR13
TR14
TR15
TR16
TR17
TR18
TR19
TR20
TR21
TR22
TR23
TR24
R1
R2
R3
R4
R5
R6
R7
R8
R9
R12
R13
R14
R15
R16
R17
R19
C1
C2
C3
C4
C6
CS
D1
D6
D7
R51

REPAIRS REGARDING CD MECHANISM

IMPROVED METHOD - WHEN THE TRAY GEARS WERE DISTORTED



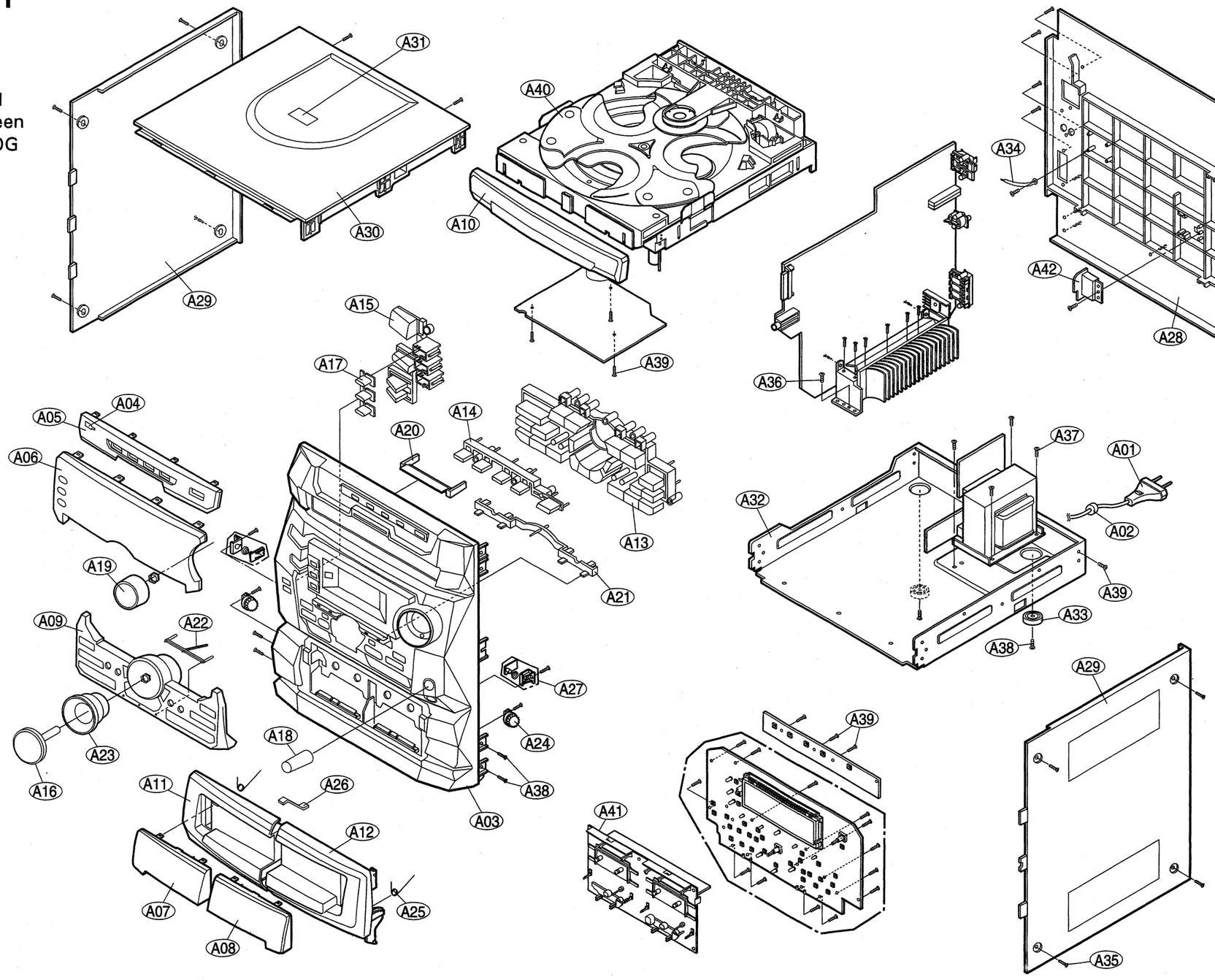
1.How to open the tray.
In case of not suppling power push two hooks (H) of the base, and then open the tray.

2.How to improve the distorted gears.
(1) Do the hole “C” of the cam gear to face forward the pick-up so the pick-up is down like figure.
(2) Do the hole “B” of main gear to face forward pick-up, too.
(Set the last part of main gear part to point “A”.)
(3) Push the tray to end.

EXPLODED VIEW/PARTS LIST

• CABINET

NOTE:
HOW TO REMOVE THE JOG DIAL.
Insert the drive of material of plastic to the gap between JOG KNOB (A16) and JOG LENS (A23), remove it gradually.



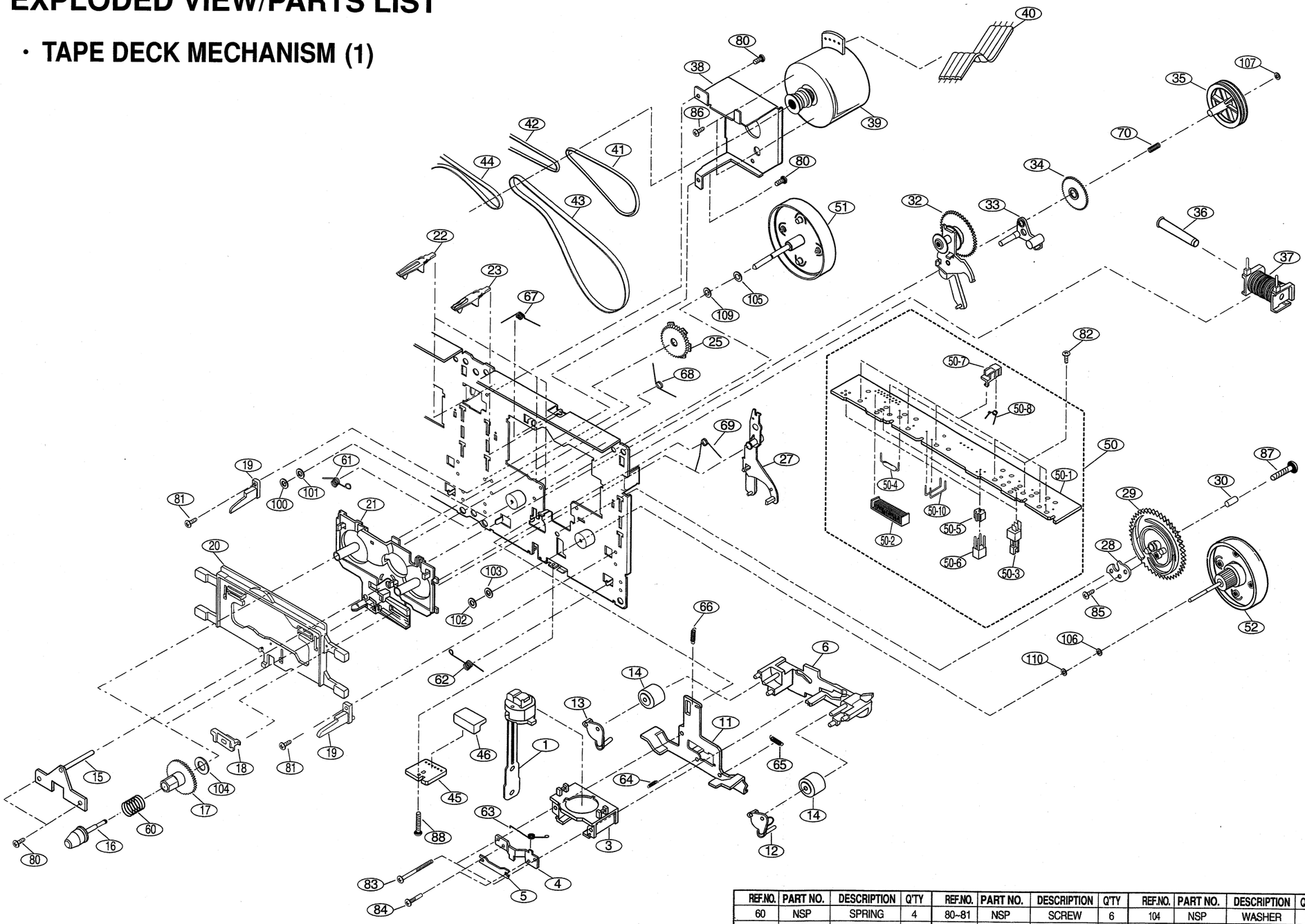
■ NOTE : VC Show the origin of Local Parts. HZ : LGEHZ

* ; Refer to the SPPL (Service Parts Price List)

S	LOCA.NO.	PART NO.(GS)	DESCRIPTION	SPECIFICATION	VC
	A01	681N039B	CORD POWER	ACUST/S-0-0053 HITACHI SH	HZ
	A02	324-620A	HOLDER	CORD HEYCD SR-5N-4 HPD	
	A03	3720SCM035A	PANEL, FRONT	FRONT	HZ
	A04	3846S-0193A	MARK	BADGE LG(RED+SILVER)	
	A05	3790SCM055*	WINDOW	CD AL BAD	HZ
	A06	3790SCM054*	WINDOW	AMP	HZ
	A07	3790SCM023*	WINDOW	CST L PLAYBACK	HZ
	A08	3790SCM023*	WINDOW	CST R SYNCHRO DU	HZ
	A09	3550SCM014*	COVER	FRONT	HZ
	A10	3580SCC877*	DOOR	CD SOUNDMASTER	HZ
	A11	3580SCA344*	DOOR	CST-L	HZ
	A12	3580SCA345*	DOOR	CST-R	HZ
	A13	4940SCM058A	KNOB	MAIN	HZ
	A14	4940SCM059A	KNOB	DISC	HZ
	A15	4940SCM060A	KNOB	POWER	HZ
	A16	4940SCM061A	KNOB	JOG VOL	HZ
	A17	4940S-1401G	KNOB	LIGHTING MILKY	HZ
	A18	4940S-6770A	KNOB	ROTARY MIC VR	
	A19	4940SC0044A	KNOB	VOLUME	HZ
	A20	3680SCM001A	LENS	CD	HZ
	A21	3680SCM007A	LENS	FUNCTION	HZ
	A22	3680SCM008A	LENS	PLAY	HZ
	A23	3680SCM009A	LENS	JOG	HZ
	A24	4901SK0001C	DAMPER ASSY	GEAR DAMPER AY(WH+WH G331)	HZ
	A25	442-085D	SPRING	SPRING	
	A26	442-577B	SPRING	SPRING CST-PACK(H=7.5)	
	A27	384-535A	GUIDE	EJECT AY DUAL	
	A28	3720SCM040A	PANEL	BACK 3000	HZ
	A29	3090SCC004B	CABINET	SIDE	HZ
	A30	3090SCC003C	CABINET	CABINET TOP	HZ
	A31	246-444K	DECORATION	PLATE FFHKL588V SILVER	HZ
	A32	3140SCC059B	CHASSIS	MAIN CHASSIS	HZ
	A33	265-024A	FOOT	ABS(BK)19.7 H=7 F-1000/59	HZ
	A34	562-050Q	LUG	LUG WIRE BEND L=80	
	A35	353-070C	SCREW	TAPTITE WASHER 4X12 FBK	HZ
	A36	353-022M	SCREW	TAPTITE 3X6 FZMY PAN S-TY	HZ
	A37	1TRL0402418	BRAIZER HEAD TA	D 4.0 L 8.0 MSWR3/FZY	HZ
	A38	1TRL0302018	BRAIZER HEAD TA	D 3.0 L 6.0 MSWR3/FZY	HZ
	A39	353-025C	SCREW	TAPTITE 3X10 FBK	HZ
	A40	4405SCE002A	MECHANISM ASSY	CDM-H1303 SHIN HEUNG CD C	HZ
	A41	6730S-G004B	DECK MECHANISM	CWL44FR-02 PIGEON L-DOUBL	HZ
	A42	552-625K	SWITCH SLIDE	CL04-SS(NR541)	HZ

EXPLODED VIEW/PARTS LIST

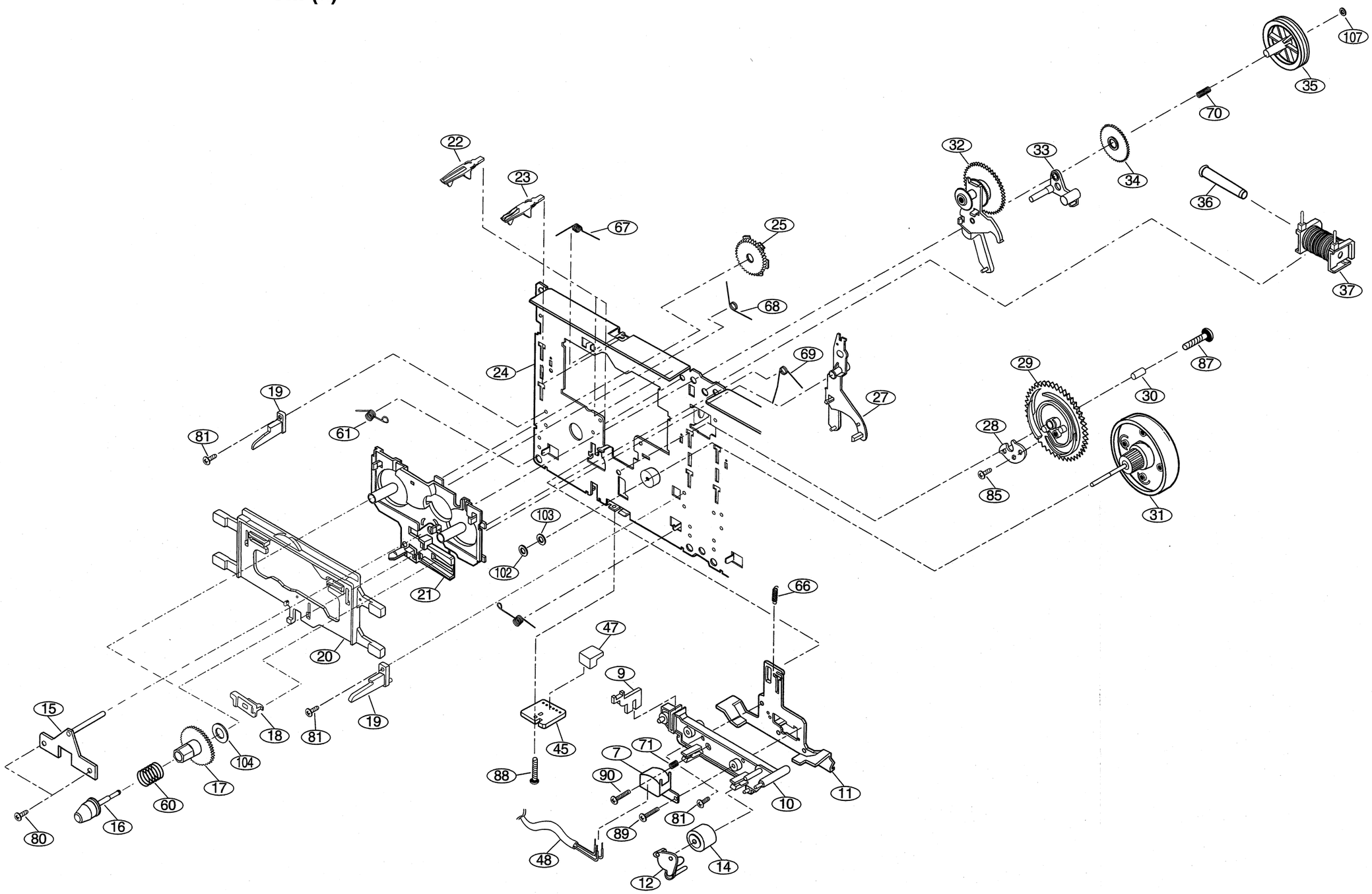
· TAPE DECK MECHANISM (1)



REF.NO.	PART NO.	DESCRIPTION	Q'TY
1	6768S-EP01A	ASS'Y HD HOLDER	1
3	NSP	EP AME HD	1
4	NSP	PLATE AZ	1
5	NSP	SPRING AZ	1
6	NSP	LEVER HD	1
7	6768S-HP03A	PB HEAD	1
9	NSP	GUIDE TAPE	1
10	NSP	PLATE HD	1
11	NSP	CHASSIS HD	0
12	NSP	CAP PINCH R	2
13	NSP	CAP PINCH L	1
14	NSP	ROLLER PINCH	3
15	NSP	ASS'Y PLATE D	2
16	NSP	CAP REEL	4
17	NSP	GEAR REEL	4
18	NSP	LEVER ST	2
19	NSP	GUIDE C	4
20	NSP	LEVER BRAKE B	2
21	NSP	FRAME A	2
22	6768S-AP02C	ARM SW	4
23	6768S-AP02B	ARM CS	2
24	NSP	ASS'Y CHASSIS	1
25	NSP	ASS'Y COVER	2
27	6768S-AP02A	ARM TRIGGER	2
28	NSP	ARM CAM	2
29	NSP	GEAR CAM	2
30	NSP	COLLER	2
31	NSP	ASS'Y FLYWHEEL R	1
32	6768S-GP02A	ASS'Y CLUTCH	2
33	NSP	ARM UD B	2
34	NSP	GEAR UD	2
35	NSP	PULLEY D	2
36	NSP	PLUNGER	2
37	6768S-VP01A	ASS'Y BOBBIN	2
38	NSP	BRACKET MM	1
39	6768S-OP01A	ASS'Y MOTOR	1
40	NSP	WIRE MM	1
41	6768S-BP04A	BELT BFR	1
42	6768S-BP04B	BELT AFR	1
43	6768S-BP04C	BELT BR	1
44	6768S-BP04D	BELT AF	1
45	NSP	PCB HD	2
46	NSP	HOUSING	1
47	NSP	HOUSING	1
48	NSP	WIRE HD B	1
50	NSP	ASS'Y PCB	1
50-1	NSP	PCB	1
50-2	NSP	HOUSING	1
50-3	6768S-TP01B	MODE SW	2
50-4	NSP	RESISTER	1
50-5	NSP	SPACER	2
50-6	6768S-XP01B	PHOTOINTERRUPTER	2
50-7	6768S-MP02A	BOX SW	6
50-8	6768S-SP02A	SPRING SW	4
50-10	NSP	JAMPER WIRE	2
51	NSP	ASS'Y FLYWHEEL L	1
52	NSP	ASS'Y FLYWHEEL L	1

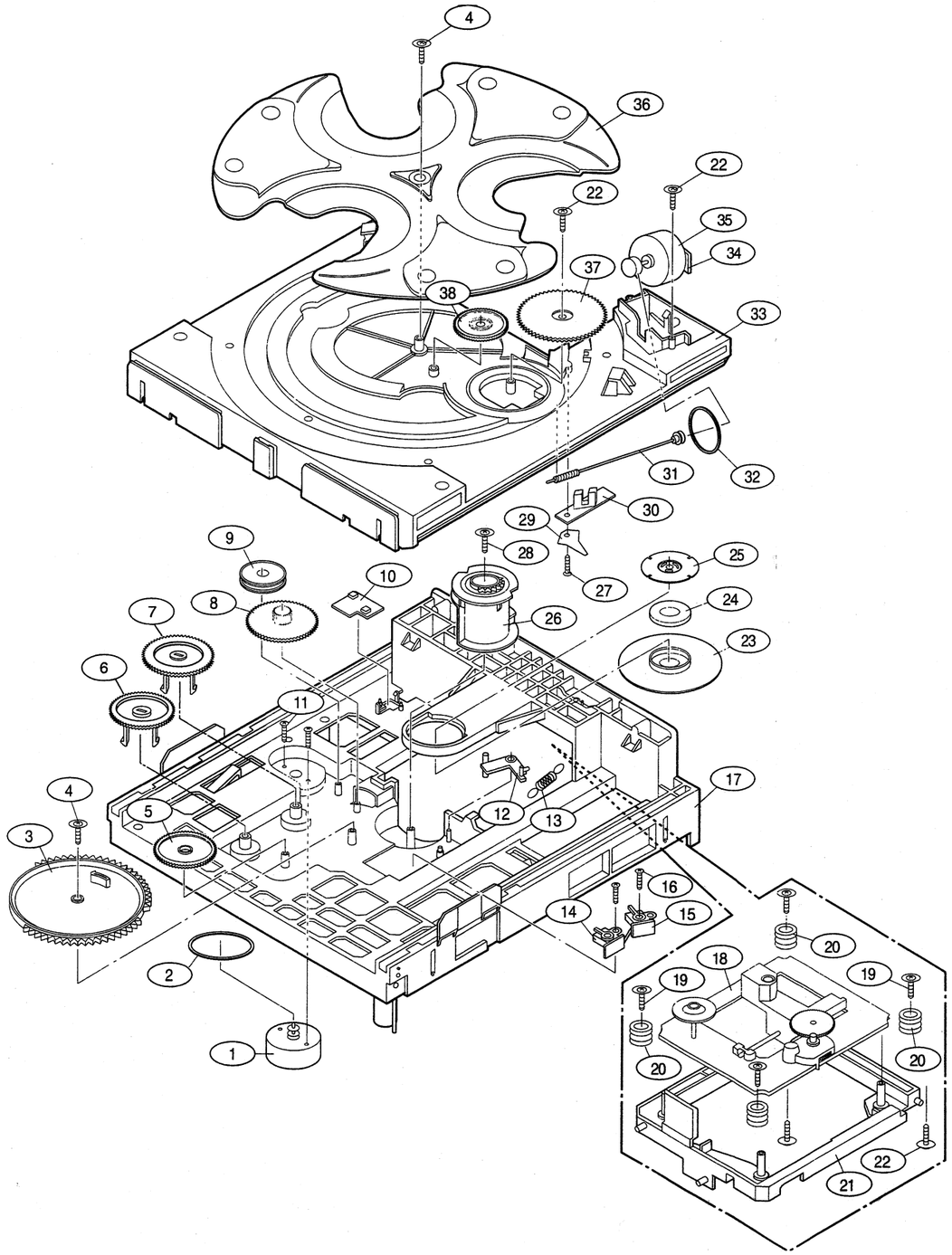
REF.NO.	PART NO.	DESCRIPTION	Q'TY	REF.NO.	PART NO.	DESCRIPTION	Q'TY	REF.NO.	PART NO.	DESCRIPTION	Q'TY
60	NSP	SPRING	4	80~81	NSP	SCREW	6	104	NSP	WASHER	4
61~62	NSP	SPRING	2	82~88	NSP	SCREW	2	105	NSP	WASHER	1
63~65	NSP	SPRING	1	89~90	NSP	SCREW	1	106~107	NSP	WASHER	2
66~70	NSP	SPRING	2	100~101	NSP	WASHER	1	109~110	NSP	WASHER	1
71	NSP	SPRING	1	102~103	NSP	WASHER	2				

· TAPE DECK MECHANISM (2)



EXPLODED VIEW/PARTS LIST

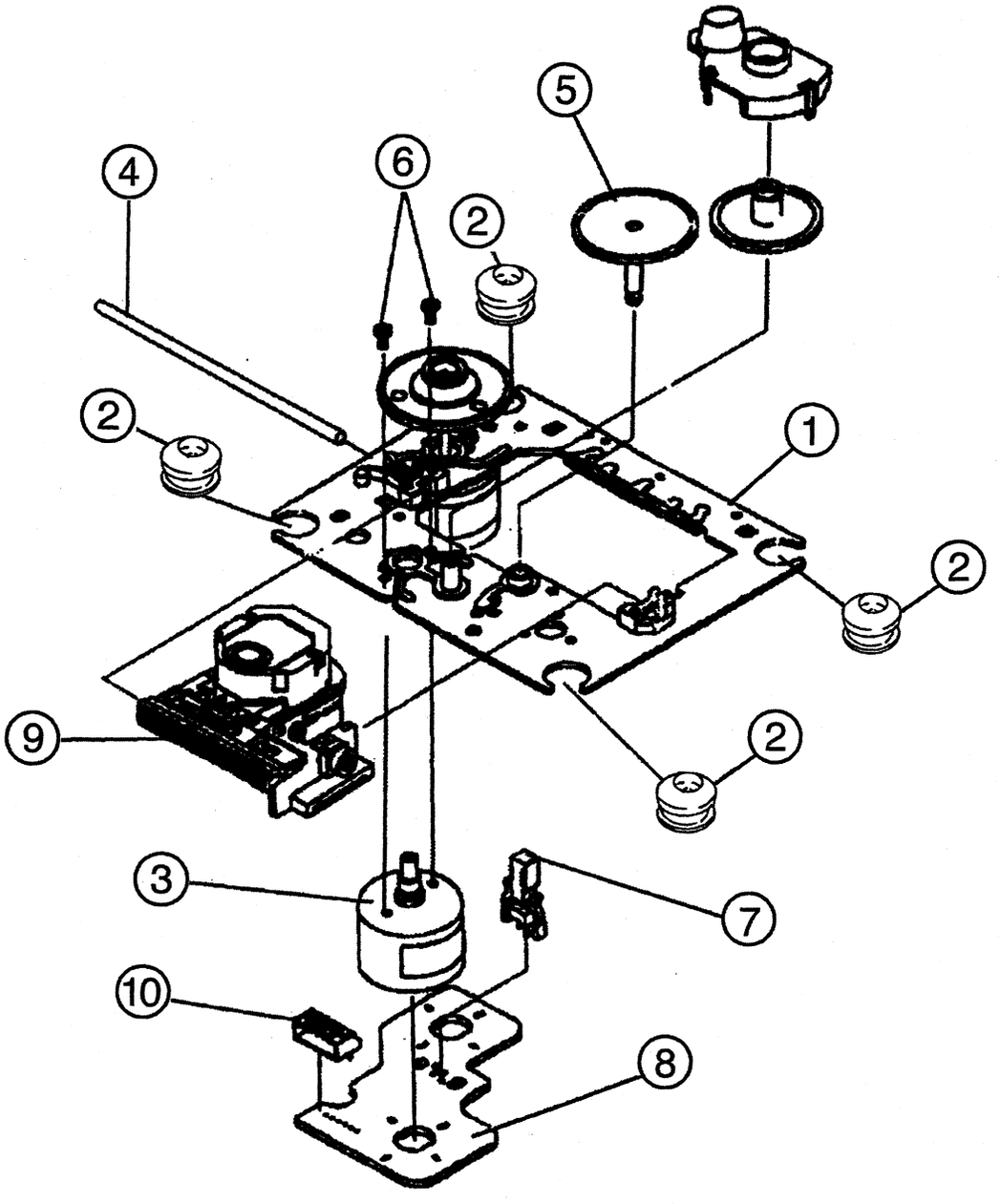
• CD MECHANISM



REF.NO.	PART NO.	DESCRIPTION
-	4405SCE002A	CD MECHANISM ASS'Y(CDM-H1303)
1	4680SBP001A	MOTOR PULLEY ASS'Y
2	4400SB0001A	BELT MAIN
3	4470SB0005A	GEAR MAIN
4	88H-0004	SCREW(3X12X12)
5	4470SB0007A	GEAR PU UP-A
6	4470SB0008A	GEAR PU UP-B
7	4470SB0006A	GEAR PU DOWN
8	4470SB0004A	GEAR LOADING
9	4470SB0003A	GEAR PULLEY
10	6871SB21RAD	PCB ASS'Y CLOSE
11	353S353F	SCREW D2.6 L4.0
12	4974SB0001A	GUIDE CAM
13	4970SBN002A	SPRING CAM
14	6871SC21RAD	PCB ASS'Y OPEN
15	6871SD21RAD	PCB ASS'Y CAM
16	88H-0004	SCREW(3X12X12)
17	3040SB0002A	BASE MAIN
18	4405SCB001A	MECHANISM ASS'Y(KSM-213CCM)
19	6756SBX001A	SCREW(2.6X10X10)
20	4900SB0001A	DAMPER RUBBER
21	3040SB0003A	BASE PU(CDM-H1303)
22	88H-0002	SCREW(3X9X12)
23+24+25	4860SB0002A	CLAMP ASS'Y
23	4860SB0001A	CLAMP DISC
24	524-012A	COVER CLAMP MAGNET
25	3550SB0001A	COVER MAGNET
26	4471SB0001A	GEAR CAM ASS'Y
27	353-025B	SCREW D3.0 L8.0
28	88H-0003A	SCREW(3X12X10)
29	4974SB0003A	GUIDE WORM
30	6871SF21RAD	PCB ASS'Y SENSOR
31	4371SB0002A	SHAFT ASS'Y TRAY
32	4400SB0001B	BELT TRAY
33	3390SB0001A	TRAY LOADING
34	6870SE21RAB	PCB ASS'Y TRAY
35	4680SBP002A	MOTOR ASS'Y TRAY
36	3390SB0002A	TRAY DISC
37	4470SB0010A	GEAR TRAY A
38	4470SB0011A	GEAR TRAY B

EXPLODED VIEW/PARTS LIST

• OPTICAL PICK-UP CARRIAGE



SP: Serviceable Part

NSP: Not Serviceable Part

REF.NO.	PART NO	DESCRIPTION	Q'TY	REMARK
	4405SCB001A	MECHANISM ASSEMBLY, KSM-213CCM	1	SP
1	88S-0099	TT CHASSIS ASS'Y	1	NSP
2	88S-0089	INSULATOR(S)	4	NSP
3	6756S-O001A	MOTOR	1	NSP
4	88S-0088	SLIDE SHAFE(S)	1	NSP
5	6756S-G001A	GEAR	1	SP

REF.NO.	PART NO	DESCRIPTION	Q'TY	REMARK
6	88S-0101	+P 2 × 3	2	NSP
7	6756S-T001A	SWITCH	1	SP
8	88S-0098	MOTOR BASE(6P)	1	NSP
9	6756S-X001A	PICK-UP, KSS-213C	1	SP
10	88S-0100	CONNECTOR 6P	1	NSP

ELECTRICAL PARTS LIST

NOTE :

▶Parts marked with " ⚠ "are important for maintaining the safety of the set. Be sure to replace these parts with specified one for maintaining the safety and performance of the set.

▶VC Shows the origin of Local Parts. HZ : LGEHZ

LOCA NO.	PART NO.	SPECIFICATION	VC
IC			
IC102	0ISA183700A	LA1837 30P DIP BK AM/FM IF MPX	
IC103	0ISA721310A	LC72131D 22P DIP BK PLL FOR TU	HZ
IC201	0IRH312600A	"BA3126N HI-VOL HEAD S/W,ROHM/"	HZ
IC202	0IKE628900A	KIA6289N (KIA148N) KEC	HZ
IC203	0IRH209000A	BU2090F 16PIN SOP BK EXPANDER	HZ
IC301	0ISA866540Q	LC866540V 100P QFP BK 1ST MICO	
IC302	0IMY700000A	MSGEQ7 8P DIP BK 7 BAND GRAPHI	
IC303	0IRH209000A	BU2090F 16PIN SOP BK EXPANDER	HZ
IC305	0IKE455800A	KIA4558P 8DIP LIN OP-AMP	HZ
IC401	0ISG743900B	TDA7439 (NEW) 30P SDIP BK FUNC	HZ
IC403	0IKE455800A	KIA4558P 8DIP LIN OP-AMP	HZ
IC407	0IKE455800A	KIA4558P 8DIP LIN OP-AMP	HZ
IC701	0ISA411220A	STK411-220E 22P SIP BK PWR AMP	
IC702	0IKE780500H	"KIA7805PI 5V 1A REG/VOLT,KEC"	HZ
IC704	0ISS781200E	KA78R12 TO-220 LD 1A REGL	HZ
IC705	0ISS780500D	KA78R05 TO-220 LD 1A REG	HZ
IC801	0ISS922300A	KB9223 80P QFP BK CD ASP	HZ
IC802	0ISS928600A	KS9286 80P QFP BK CD DSP	HZ
IC803	0ISS301000A	KA3010D 28-SSOPH-375 BK 4CH MO	HZ
IC804	0ISS830100B	KA8301 10PIN SIP BK CD MOTOR D	HZ
IC805	0ISS308200A	KA3082 10-SIP BK MOTOR DRIVE	HZ
RM301	0IRH693840A	RPM6938-V4 3P BK REMOCON MODUL	HZ
TVS101	668-906G	1.5KE62C CHONGHO	
TRANSISTOR			
Q101	0TR319209AA	"KTC3192-0 TP,KEC(KTC380TM-0)"	HZ
Q102	0TR126709AB	"KTA1267-Y MINI TP,KEC"	HZ
Q103	0TR102009AF	"KRC102M TP,KEC(KRC1202)"	HZ
Q105	0TR102009AE	"KRA102M TP,KEC(KRA2202)"	HZ
Q106	0TR102009AE	"KRA102M TP,KEC(KRA2202)"	HZ
Q107	0TR319809AB	KTC3198-TP-GR (KTC1815) KEC	HZ
Q108	0TR319809AB	KTC3198-TP-GR (KTC1815) KEC	HZ
Q109	0TR319809AB	KTC3198-TP-GR (KTC1815) KEC	HZ
Q110	0TR319809AB	KTC3198-TP-GR (KTC1815) KEC	HZ
Q111	0TR103009AF	"KRA103M TP,KEC(KRA2203)"	HZ
Q115	0TR102009AF	"KRC102M TP,KEC(KRC1202)"	HZ
Q201	0TR130209AA	"KTD1302 MUTING TP,KEC"	HZ
Q202	0TR319809AB	KTC3198-TP-GR (KTC1815) KEC	HZ
Q203	0TR319809AB	KTC3198-TP-GR (KTC1815) KEC	HZ
Q205	0TR320509AB	KTC3205-TP-Y (KTC2236A)KEC	HZ
Q206	0TR319809AB	KTC3198-TP-GR (KTC1815) KEC	HZ
Q207	0TR320509AB	KTC3205-TP-Y (KTC2236A)KEC	HZ
Q208	0TR130209AA	"KTD1302 MUTING TP,KEC"	HZ
Q209	0TR127309AA	KTA1273-TP-Y (KTA966A)KEC	HZ
Q210	0TR127309AA	KTA1273-TP-Y (KTA966A)KEC	HZ
Q211	0TR127309AA	KTA1273-TP-Y (KTA966A)KEC	HZ

LOCA NO.	PART NO.	SPECIFICATION	VC
Q212	0TR126609AA	KTA1266-TP-Y (KTA1015) KEC	HZ
Q213	0TR102009AF	"KRC102M TP,KEC(KRC1202)"	HZ
Q251	0TR130209AA	"KTD1302 MUTING TP,KEC"	HZ
Q252	0TR319809AB	KTC3198-TP-GR (KTC1815) KEC	HZ
Q253	0TR319809AB	KTC3198-TP-GR (KTC1815) KEC	HZ
Q254	0TR102009AF	"KRC102M TP,KEC(KRC1202)"	HZ
Q302	0TR126609AA	KTA1266-TP-Y (KTA1015) KEC	HZ
Q306	0TR319209AA	"KTC3192-0 TP,KEC(KTC380TM-0)"	HZ
Q307	0TR126609AA	KTA1266-TP-Y (KTA1015) KEC	HZ
Q308	0TR126609AA	KTA1266-TP-Y (KTA1015) KEC	HZ
Q309	0TR320509AB	KTC3205-TP-Y (KTC2236A)KEC	HZ
Q310	0TR102009AF	"KRC102M TP,KEC(KRC1202)"	HZ
Q311	0TR102009AF	"KRC102M TP,KEC(KRC1202)"	HZ
Q312	0TR102009AF	"KRC102M TP,KEC(KRC1202)"	HZ
Q313	0TR102009AF	"KRC102M TP,KEC(KRC1202)"	HZ
Q314	0TR102009AF	"KRC102M TP,KEC(KRC1202)"	HZ
Q330	0TR102009AF	"KRC102M TP,KEC(KRC1202)"	HZ
Q331	0TR102009AF	"KRC102M TP,KEC(KRC1202)"	HZ
Q401	0TR130209AA	"KTD1302 MUTING TP,KEC"	HZ
Q402	0TR102009AE	"KRA102M TP,KEC(KRA2202)"	HZ
Q405	0TR201200AB	KTD2058-Y PWR KEC	HZ
Q406	0TR102009AE	"KRA102M TP,KEC(KRA2202)"	HZ
Q407	0TR319809AB	KTC3198-TP-GR (KTC1815) KEC	HZ
Q408	0TR130209AA	"KTD1302 MUTING TP,KEC"	HZ
Q409	0TR111009AD	"KRC111M TP,KEC"	HZ
Q410	0TR111009AD	"KRC111M TP,KEC"	HZ
Q411	0TR103009AE	"KRC103M TP,KEC(KRC1203)"	HZ
Q412	0TR111009AD	"KRC111M TP,KEC"	HZ
Q414	0TR130209AA	"KTD1302 MUTING TP,KEC"	HZ
Q415	0TR130209AA	"KTD1302 MUTING TP,KEC"	HZ
Q420	0TR111009AC	"KRA111M TP,KEC"	HZ
Q451	0TR130209AA	"KTD1302 MUTING TP,KEC"	HZ
Q701	0TR127309AA	KTA1273-TP-Y (KTA966A)KEC	HZ
Q702	0TR320009AA	KTC3200-TP-GR (KTC2240)KEC	HZ
Q703	0TR949009AA	"KTA949-Y TP, KEC"	HZ
Q752	0TR320009AA	KTC3200-TP-GR (KTC2240)KEC	HZ
Q761	0TR319809AB	KTC3198-TP-GR (KTC1815) KEC	HZ
Q761	0TR319809AB	KTC3198-TP-GR (KTC1815) KEC	HZ
Q762	0TR319809AB	KTC3198-TP-GR (KTC1815) KEC	HZ
Q763	0TR320209AA	KTC3202-TP-Y (KTC1959)KEC	HZ
Q764	0TR319809AB	KTC3198-TP-GR (KTC1815) KEC	HZ
Q801	0TR127109AA	KTA1271-TP-Y (KTA950)KEC	HZ
DIODE			
D105	0DR102109AA	RL102-10C TP GULF SEMICONDUCTO	HZ
D106	0DD133009AB	"1SS133,T-72(52MM) TP ROHM-K"	HZ
D107	0DD133009AB	"1SS133,T-72(52MM) TP ROHM-K"	HZ
D150	0DD133009AB	"1SS133,T-72(52MM) TP ROHM-K"	HZ

LOCA NO.	PART NO.	SPECIFICATION	VC
D151	0DD133009AB	"1SS133,T-72(52MM) TP ROHM-K"	HZ
D205	0DR102109AA	RL102-10C TP GULF SEMICONDUCTO	HZ
D206	0DR102109AA	RL102-10C TP GULF SEMICONDUCTO	HZ
D301	0DD133009AB	"1SS133,T-72(52MM) TP ROHM-K"	HZ
D302	0DD133009AB	"1SS133,T-72(52MM) TP ROHM-K"	HZ
D303	0DD133009AB	"1SS133,T-72(52MM) TP ROHM-K"	HZ
D304	0DD133009AB	"1SS133,T-72(52MM) TP ROHM-K"	HZ
D312	0DD133009AB	"1SS133,T-72(52MM) TP ROHM-K"	HZ
D315	0DD133009AB	"1SS133,T-72(52MM) TP ROHM-K"	HZ
D317	0DD133009AB	"1SS133,T-72(52MM) TP ROHM-K"	HZ
D318	0DR102109AA	RL102-10C TP GULF SEMICONDUCTO	HZ
D319	0DR102109AA	RL102-10C TP GULF SEMICONDUCTO	HZ
D320	0DD133009AB	"1SS133,T-72(52MM) TP ROHM-K"	HZ
D321	0DD133009AB	"1SS133,T-72(52MM) TP ROHM-K"	HZ
D322	0DD133009AB	"1SS133,T-72(52MM) TP ROHM-K"	HZ
D323	0DD133009AB	"1SS133,T-72(52MM) TP ROHM-K"	HZ
D332	0DD133009AB	"1SS133,T-72(52MM) TP ROHM-K"	HZ
D602	0DR102109AA	RL102-10C TP GULF SEMICONDUCTO	HZ
D701	0DD133009AB	"1SS133,T-72(52MM) TP ROHM-K"	HZ
D702	0DD133009AB	"1SS133,T-72(52MM) TP ROHM-K"	HZ
D703	0DD133009AB	"1SS133,T-72(52MM) TP ROHM-K"	HZ
D706	0DD133009AB	"1SS133,T-72(52MM) TP ROHM-K"	HZ
D707	0DR610000AA	KBU6G-10C BK GULF SEMICONDUCTO	HZ
D708	0DR102109AA	RL102-10C TP GULF SEMICONDUCTO	HZ
D709	0DR102109AA	RL102-10C TP GULF SEMICONDUCTO	HZ
D710	0DR102109AA	RL102-10C TP GULF SEMICONDUCTO	HZ
D711	0DR610000AA	KBU6G-10C BK GULF SEMICONDUCTO	HZ
D751	0DD133009AB	"1SS133,T-72(52MM) TP ROHM-K"	HZ
D777	0DD133009AB	"1SS133,T-72(52MM) TP ROHM-K"	HZ
D778	0DD133009AB	"1SS133,T-72(52MM) TP ROHM-K"	HZ
D779	0DD133009AB	"1SS133,T-72(52MM) TP ROHM-K"	HZ
D780	0DD133009AB	"1SS133,T-72(52MM) TP ROHM-K"	HZ
D801	0DD133009AB	"1SS133,T-72(52MM) TP ROHM-K"	HZ
LED			
K	653-902B	"GP1S53 PHOTO SENSOR,SHARP"	HZ
LD301	0DL307119CA	LTL-307YE-112A TP LITEON YELLO	HZ
LD302	0DL307119CA	LTL-307YE-112A TP LITEON YELLO	HZ
LD303	0DL307119CA	LTL-307YE-112A TP LITEON YELLO	HZ
LD304	0DL307119CA	LTL-307YE-112A TP LITEON YELLO	HZ
LD305	0DL307119DA	LTL-307E-112A TP LITEON RED =0	HZ
LD306	0DL307119DA	LTL-307E-112A TP LITEON RED =0	HZ
LD307	0DL307119DA	LTL-307E-112A TP LITEON RED =0	HZ
LD308	0DL307119DA	LTL-307E-112A TP LITEON RED =0	HZ
LD309	0DL307119FA	LTL-307K-112A TP LITEON GREEN	HZ
LD310	0DL307119FA	LTL-307K-112A TP LITEON GREEN	HZ
LD311	0DL307119EA	LTL-307KE-112A TP LITEON GREEN	HZ
LD312	0DL307119EA	LTL-307KE-112A TP LITEON GREEN	HZ
LD313	0DL307119EA	LTL-307KE-112A TP LITEON GREEN	HZ
LD314	0DL307119EA	LTL-307KE-112A TP LITEON GREEN	HZ
LD315	0DL307119EA	LTL-307KE-112A TP LITEON GREEN	HZ
LD316	0DL307119EA	LTL-307KE-112A TP LITEON GREEN	HZ
LD317	0DL307119DA	LTL-307E-112A TP LITEON RED =0	HZ
LD320	0DL102109AA	LTL-1CHE-021A TP LITEON RED =0	HZ
LD321	0DL102109AA	LTL-1CHE-021A TP LITEON RED =0	HZ

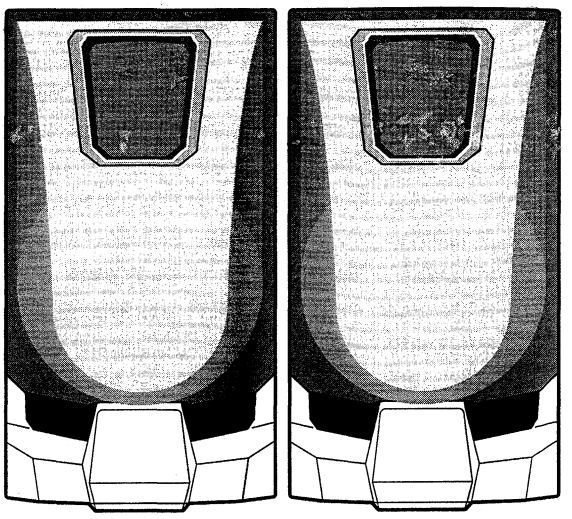
LOCA NO.	PART NO.	SPECIFICATION	VC
LD322	0DL102109AA	LTL-1CHE-021A TP LITEON RED =0	HZ
LD323	0DL102109AA	LTL-1CHE-021A TP LITEON RED =0	HZ
LD510	0DL307119EA	LTL-307KE-112A TP LITEON GREEN	HZ
LD511	0DL111209GA	LTL-1CHAS-112A TP LITEON ORANG	HZ
LD512	0DL307119EA	LTL-307KE-112A TP LITEON GREEN	HZ
LD513	0DL111209GA	LTL-1CHAS-112A TP LITEON ORANG	HZ
LD514	0DL307119EA	LTL-307KE-112A TP LITEON GREEN	HZ
"DIODE,ZENER"			
ZD101	0DZ910009AG	GDZJ9.1C TP GRANDE DO-34 500MW	HZ
ZD302	0DZ750009AE	GDZJ7.5C TP GRANDE DO-34 500MW	HZ
ZD401	0DZ910009AG	GDZJ9.1C TP GRANDE DO-34 500MW	HZ
ZD701	0DZ510009AH	GDZJ5.1B TP GRANDE DO-34 500MW	HZ
ZD702	0DZ330009AR	GDZJ33D TP GRANDE DO-34 500MW	HZ
ZD707	0DZ130009AK	GDZJ13C TP GRANDE DO34 500MW 1	HZ
ZD708	0DZ510009AH	GDZJ5.1B TP GRANDE DO-34 500MW	HZ
ZD758	0DZ510009AH	GDZJ5.1B TP GRANDE DO-34 500MW	HZ
ZD801	0DZ390009AC	GDZJ3.9B TP GRANDE DO-34 500MW	HZ
ZD803	0DZ510009AH	GDZJ5.1B TP GRANDE DO-34 500MW	HZ
ZD804	0DZ510009AH	GDZJ5.1B TP GRANDE DO-34 500MW	HZ
COIL			
L101	6140SCD001A	IFT FILTER KSNT-101I KWANGSUNG	HZ
L102	637N009A	33MH C/CORE (=N008A)	HZ
L103	6140SCC302A	CHOKE 20.8MH 79.6KHZ Q50 KWAN	HZ
L105	6140SCB001A	RF LW TUNING UNIT(634-700D) KW	HZ
L105	6140SCB001C	"RF,SW TUNING UNIT(634-700E) KW"	HZ
L106	6140SCJ004A	KSZ-73C KWANG SUNG OSC BULK FF	HZ
L107	6140SCB001D	"RF,MW TUNING UNIT(634-700E) CE"	HZ
L109	0LA1000K019	100M K 2.3X3.4 L5 TP(52M/M)	HZ
L120	638N202A	MPX FILTER 19K (=102A)	HZ
L121	638N202A	MPX FILTER 19K (=102A)	HZ
L203	634N620C	OSC TAPE 10 4.7MH (=610C)	HZ
CONNECTOR			
CN305	6630S-BC044	TKC-V30X-A1 TAIKO DENKI 30PIN	
CN308	561-640C	GL200-03P-TS P=2.0 HOLDER GSC	
CN501	561-640H	GL200-08P-TS P=2.0 HOLDER GSC	
CN701	561-640J	GL200-10P-TS P=2.0 HOLDER GSC	
CN807	561-640J	GL200-10P-TS P=2.0 HOLDER GSC	
JK101	561-100H	TERMIANL ANT SP-031	
JK101	561-101B	"TERMINAL,SPEAKER SP-024B2"	
JK601	561-100D	TERMIANL SPEAKER SP-026B	
P702	561-910C	TERMINAL SEMKO PCB-ROCKING	
PN201	561-715C	"WAFER, G/S GO;-G-03P-S3T2-E(S)"	
PN202	561-715H	"WAFER,G/S GIL-G-08P-S3T2-E (S)"	
PN301	561-686T	"WAFER,FPC ELCO 8370-201 20PST"	
PN301	561-686T	"WAFER,FPC ELCO 8370-201 20PST"	
PN302	6630S-BC034	TKC-V30P-A1 TAIKO DENKI 30PIN	
PN308	561-640C	GL200-03P-TS P=2.0 HOLDER GSC	
PN501	561-640H	GL200-08P-TS P=2.0 HOLDER GSC	
PN501	561-686Q	00-8370-171-000-800 ELCO 17PIN	
PN701	561-643J	WIRE TRAP J-MX52151-1010	
PN702	561-650D	WAFER HANLIM FWP1145-04R D=1.5	
PN704	561-650D	WAFER HANLIM FWP1145-04R D=1.5	

LOCA.NO	PART NO.	SPECIFICATION	VC
PN801	6630S-FB07P	00-6232-016-008-800 ELCO KOREA	
PN802	561-711B	"WAF, G/S GIL-S-02P-S2T2-EF"	
PN803	561-711F	"WAF, G/S GIL-S-06P-S2T2-EF"	
PN804	561-711D	"WAF, G/S GIL-S-04P-S2T2-EF"	
PN805	561-711E	"WAF, G/S GIL-S-05P-S2T2-EF"	
PN806	561-686T	"WAF, G/S ELCO 8370-201 20PST"	
PN807	561-644J	WIRE TAP MX52147-1010	
TP801	561-716C	"WAFER G/S GIL-G-03P-S3L2-E (2)"	
CRYSTAL			
X104	617T602D	7.2MHZ	
X302	617-602F	32.768KHZ KYOCERA (S)	
DIGITRON			
FIP301	6302S-V003D	SVA-16ML04 SAMSUNG FFH-5500/88	HZ
FILTER CERAMIC			
CF101	616-010B	SFE10.7MS3GH(RO) 180K (S)	
CF102	616-010B	SFE10.7MS3GH(RO) 180K (S)	
X301	616-020P	CSA6.00MMU MURATA	
X801	616-020X	"CSA16.93MX040.MURATA"	
FUSE			
⚠ F702	0FT5001B513	5A 250V 5.2X20 PT/G SEMKO	
⚠ F702	0FT5001B510	5A 250V 5.2X20 CY/GL UL/CSA	
⚠ F703	0FT6301B513	6.3A 250V 5.2X20 PT/G SEMKO	
⚠ F703	0FT6301B510	6.3A 250V 5.2X20 CY/GL UL/CSA	
⚠ F704	0FT6301B513	6.3A 250V 5.2X20 PT/G SEMKO	
⚠ F704	0FT6301B510	6.3A 250V 5.2X20 CY/GL UL/CSA	
⚠ F705	0FT4001B513	4A 250V 5.2X20 CY/GL SEMKO	
⚠F705	0FT4001B512	4A 250V 5.2X20 CY/GL UL/CSA	
⚠F706	0FT4001B513	4A 250V 5.2X20 CY/GL SEMKO	
⚠F706	0FT4001B512	4A 250V 5.2X20 CY/GL UL/CSA	
JACK			
JK103	576-002I	JACK,BLOCK S-436*-2P (RD/WH)	HZ
JK301	572-534F	HTJ-064-03B1 H=12.5 9PIN KUNMI	HZ
JK602	572-534F	HTJ-064-03B1 H=12.5 9PIN KUNMI	HZ
RELAY			
RY601	6920SC0001A	OMI-SS-212LM ORIGNAL 12V 0.044	HZ
TRANSFORMER, POWER			
⚠PT701	6170SCN03ZS	115/230V 5/60HZ 96×60 SEK HZ	
TUNER			
TUN101	6700SCF001A	KST-F401VA KWANGSUNG FM 3GANG HZ	HZ
TUN101	6700SCF001B	KST-F404VA KWANGSUNG FM 4GANG HZ (FOR QUELLE)	HZ
TUN101	6700SCF001C	KST-F402VD KWANGSUNG FM WIDE HZ	HZ
TUN101	6700SCF001E	KST-F401VA-3 KWANGSUNG FM NEW FCC HZ (FOR AKAI)	HZ
VARIABLE RESISTOR			
VR201	0RV1472D230	4.7K 6 ST P3 L2.5 5	HZ
VR301	6110S-ET01A	EC16B242040M J-ALPS D=16 V24	
VR301	6110S-ET01A	EC16B242040M J-ALPS D=16 V24	
VR302	6110S-ET01A	EC16B242040M J-ALPS D=16 V24	
VR380	6110S-RT01A	RK14K1240 J-ALPS D=14 V 100KBX	
SWITCH			
K	558-024E	SPPB61114A J-ALPS	
SW501	6600S-TV02A	SQAN-130 J-ALPS NON 12V 0.5A V	
SW502	6600S-TV02A	SQAN-130 J-ALPS NON 12V 0.5A V	
SW503	6600S-TV02A	SQAN-130 J-ALPS NON 12V 0.5A V	
SW504	6600S-TVO2A	SQAN-130 J-ALPS NON 12V 0.5A V	
SW505	6600S-TV02A	SQAN-130 J-ALPS NON 12V 0.5A V	
SW506	6600S-TV02A	SQAN-130 J-ALPS NON 12V 0.5A V	
SW507	6600S-TV02A	SQAN-130 J-ALPS NON 12V 0.5A V	
SW508	6600S-TV02A	SQAN-130 J-ALPS NON 12V 0.5A V	
SW509	6600S-TV02A	SQAN-130 J-ALPS NON 12V 0.5A V	
SW510	6600S-TV02A	SQAN-130 J-ALPS NON 12V 0.5A V	
SW511	6600S-TV02A	SQAN-130 J-ALPS NON 12V 0.5A V	
SW512	6600S-TV02A	SQAN-130 J-ALPS NON 12V 0.5A V	
SW513	6600S-TV02A	SQAN-130 J-ALPS NON 12V 0.5A V	
SW514	6600S-TV02A	SQAN-130 J-ALPS NON 12V 0.5A V	
SW515	6600S-TV02A	SQAN-130 J-ALPS NON 12V 0.5A V	
SW516	6600S-TV02A	SQAN-130 J-ALPS NON 12V 0.5A V	
SW517	6600S-TV02A	SQAN-130 J-ALPS NON 12V 0.5A V	
SW518	6600S-TV02A	SQAN-130 J-ALPS NON 12V 0.5A V	
SW519	6600S-TV02A	SQAN-130 J-ALPS NON 12V 0.5A V	
SW520	6600S-TV02A	SQAN-130 J-ALPS NON 12V 0.5A V	
SW521	6600S-TV02A	SQAN-130 J-ALPS NON 12V 0.5A V	
SW522	6600S-TV02A	SQAN-130 J-ALPS NON 12V 0.5A V	
SW523	6600S-TV02A	SQAN-130 J-ALPS NON 12V 0.5A V	
SW524	6600S-TV02A	SQAN-130 J-ALPS NON 12V 0.5A V	
SW525	6600S-TV02A	SQAN-130 J-ALPS NON 12V 0.5A V	
SW526	6600S-TV02A	SQAN-130 J-ALPS NON 12V 0.5A V	
SW527	6600S-TV02A	SQAN-130 J-ALPS NON 12V 0.5A V	
SW528	6600S-TV02A	SQAN-130 J-ALPS NON 12V 0.5A V	
SW529	6600S-TV02A	SQAN-130 J-ALPS NON 12V 0.5A V	
SW530	6600S-TV02A	SQAN-130 J-ALPS NON 12V 0.5A V	
SW531	6600S-TV02A	SQAN-130 J-ALPS NON 12V 0.5A V	
SW532	6600S-TV02A	SQAN-130 J-ALPS NON 12V 0.5A V	
SW534	6600S-TV02A	SQAN-130 J-ALPS NON 12V 0.5A V	
SW535	6600S-TV02A	SQAN-130 J-ALPS NON 12V 0.5A V	
SW536	6600S-TV02A	SQAN-130 J-ALPS NON 12V 0.5A V	
SW537	6600S-TV02A	SQAN-130 J-ALPS NON 12V 0.5A V	
SW538	6600S-TV02A	SQAN-130 J-ALPS NON 12V 0.5A V	
SW540	6600S-TV02A	SQAN-130 J-ALPS NON 12V 0.5A V	
MICELLANEOUS			
	631T603R	COIL ANTENNA "BFS2545A0F(52MM,TP)SAMHWA"	

LOCA.NO	PART NO.	SPECIFICATION	VC
	632N218E	"COIL ANTENNA" AM LOOP LGEHZ LOCAL=218E	HZ
	3828SXD014A	"MANUAL, CHINA" FFH-5500/8800 ENG/SPANISHLG Y	
	6710S-C00BA	REMOTECONTROLLER 33KEY KYOUNGIN FFH-8800	HZ
	6871SA40KAC	"PWB(PCB) ASSY, AMP" FFHK88OOL MAIN	
	6871SA40KAD	"PWB(PCB) ASSY, AMP" FFHK8800S MAIN	
	6871SA40KAE	"PWB(PCB) ASSY, AMP" FFHK8800AX MAIN	
	6871SA40KAF	"PWB(PCB) ASSY, AMP" FFH-88O0 MAIN	
	6871SA40KAM	"PWB(PCB) ASSY, AMP" MAIN (FOR QUELLE)	
	6871SB21RAD	PWB(PCB) ASSY 3CH M/D U/D/O/C PWB ASSY	
	6871SC21RAD	PWB(PCB) ASSY 3CH M/D OPEN PWB ASSY	
	6871SD21R4D	PWB(PCB) ASSY 3CH M/D CAM PWB ASSY	
	6871SF21RAD	PWB(PCB)ASSY 3CH M/D SENSOR PWB ASSY	

LOCA.NO	PART NO.	SPECIFICATION	VC
	6871SF40MAC	"PWB(PCB) ASSY, FRONT" FFHK8800L FRONT	
	6871SF40MAD	"PWB(PCB) ASSY, FRONT" FFHK88OOS FRONT	
	6871SF40MAE	"PWB(PCB) ASSY, FRONT" FFHK88OOAX FRONT	
	6871SF40MAF	"PWB(PCB) ASSY, FRONT" FFH-8800FRONT	
	6871SF40MAL	PWB ASSY, FRONT(FOR QUELLE, AKAI)	
	6871SK40MAB	"PWB(PCB) ASSY, KEY" FFHK8800 CD KEY	
	6871SK40MAC	"PWB(PCB) ASSY, KEY" FFH-8800CDKEY	
	6871SP40KAB	"PWB(PCB) ASSY. POWEP" FFHK8800 IIO/220V AREA	
	6871SP4OKAC	"PWB(PCB) ASSY. POWER" FFHK8800 220V POWER	
	687ISP40KAD	"PWB(PCB) ASSY, POWER" FFH-8800POWER	
	6871SS356AE	PWB ASSY, POWER NETWORK AY 2.7 ㎌ (FOR QUELLE)	

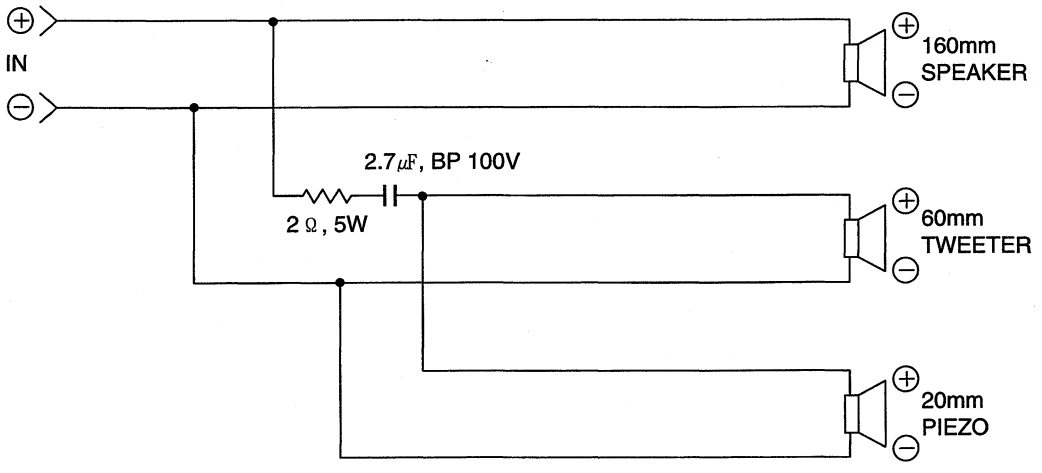
SPEAKER SYSTEM



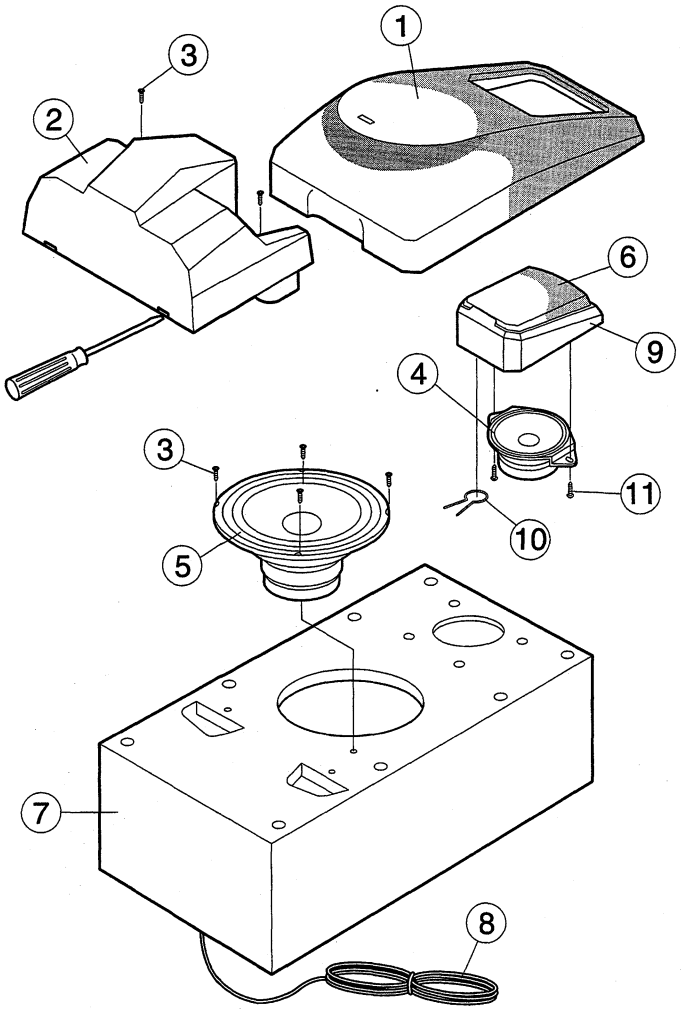
SPECIFICATION

● TYPE		: BASS REFLEX 3 WAY 3 SPEAKER SYSTEM
● SPEAKER SYSTEM		: 160mm SPEAKER(6 1/2″) , 60mm(2 1/4″)TWEETER 20mm(4/5″) PIEZO
● FREQUENCY RANGE		: 50Hz~20,000Hz
● IMPEDANCE		: 6 ohm
● S.P.L.		: 86dB/W(1m)
● RATED INPUT POWER		: 100W
● MAX. INPUT POWER		: 200W
● DIMENSION	NET	: 250(W) × 480(H) × 295(D)mm
	SHIPPED	: 608(W) × 580(H) × 381(D)mm
● WEIGHT	NET	: 6.35kg
	SHIPPED	: 14.55kg

SCHEMATIC DIAGRAM



EXPLODED VIEW/PARTS LIST



NO	DESCRIPTION	PART NO.	Q'TY
1	NET ASS'Y	3701SM0015A	1
2	PANEL FRONT	3720SMM028A(LG,AKAI)	1
		3720SMM028B(QUELLE)	1
3	SCREW (3.5X16)	353M050C	6
4	TWEETER	6400SCEB02C	1
5	WOOFER	6400SCEJ02B	1
6	GRILLE METAL	3530SMM016A	1
7	CABINET ASS'Y	3091SMW021A(LG,AKAI)	1
		3091SMW021B(QUELLE)	1
8	CORD ASS'Y	564M033L	1
9	HOLDER METAL	4930SM0012A	1
10	PIEZO	6400SCEY03B	1
11	SCREW(3 ×8)	353M025F	2